END OF YEAR 2001 THROUGH YEAR 2006
CLOSURE / CLOSEOUT PLAN

CHINO MINES

Prepared For: **Chino Mines Company**

Hurley, New Mexico

VOLUME II

CONSTRUCTION PLAN WITH

FINANCIAL ASSURANCE ESTIMATE

March 2001

To be resubmitted to the State of New Mexico within 5 years to update compliance requirements

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CHINO CLOSURE/CLOSEOUT
TABLE OF CONTENTS

VOLUME I

Certification
Preface

SECTION **PAGE**

VOLUME II

LIST OF TABLES

VOLUME I

VOLUME II

LIST OF FIGURES

VOLUME I

VOLUME II

None

LIST OF APPENDICES

7. Capital Cost Estimate

7.1 Introduction

This section addresses capital cost estimates contributing to the determination of the performance bond to be placed with the State of New Mexico.

Estimates are crafted in a manner to allow easy identification of various units within given categories; e.g., Tailing Pond 1 reclamation, water management of surface runoff, etc.

In addition, certain key components of the estimates have been estimated on a "building block" basis; e.g., adapted river beds, adapted ravines, pushdown dozer work, etc.

Material take-offs were carried out utilizing three-dimensional computer modeling. Calculations closed within 1 percent.

A summary of the capital cost is as follows:

Capital Cost Summary

	Proposed Plan Angle of Repose	Comparison Case 4:1 (Overall)
Stockpiles	$13,032,810	$143,807,599
Tailing Ponds	$29,865,470	$43,558,188
Pits	$421,855	$417,559
Reservoirs/Dams/Impoundments/ Water Treatment	$13,331,605	$15,144,429
Disturbed Areas	$6,047,467	$10,746,874
Total	$62,699,208	$213,674,649

The following sub-sections address the general Basis of Capital Cost Estimate plus category unit specific bases to identify boundary conditions and any assumptions.

7.2 Basis of Capital Cost Estimate

7.2.1 Capital Cost Estimate Parameters

7.2.1.1 Direct Costs

Direct costs include labor costs including payroll burden, field supervision, materials of construction, equipment rental costs, equipment operating costs and subcontracted costs.

7.2.1.1.1 Labor cost includes the wages the worker earns, the payroll taxes and insurance paid by the contractor, allowance for fringe benefits including holidays, vacation, sick time, medical insurance, subsistance, clothing allowances, etc and small tools.

7.2.1.1.2 Field supervision includes the wages and benefits for the field supervisory crew, field offices including furniture and equipment and transportation.

7.2.1.1.3 Materials of construction include the materials that become part of the facility as well as the consumable supplies that are used the build the facility.

7.2.1.1.4 Equipment rental cost includes the costs to rent equipment from third-party rental houses and the ownership cost of contractor owned equipment such as depreciation, taxes, interest cost and insurance.

7.2.1.1.5 Equipment operating costs include fuel, lubrication, tires, repair parts, maintenance labor, repair labor, shop operating costs, filters, ground engaging tools.

7.2.1.1.6 Subcontracts are the costs to other contractors to perform specialized tasks that the prime or general contractor lacks the expertise or ability to perform. These costs include the same direct costs as above and also the subcontractor overhead and profit.

7.2.1.2 Indirect Costs

7.2.1.2.1 Mobilization and Demobilization

7.2.1.2.1.1 Allowance for moving construction equipment to and from the job site.

7.2.1.2.1.2 Costs are a function of equipment size, weight, distance shipped.

7.2.1.2.1.3 Reclamation equipment generally available to contractors and best suited for this work consists of CAT 777/785 Rock Trucks, CAT 5130/5230 Hydraulic Shovels, CAT D10 Dozers, and CAT D11 Dozers. If reclamation is stopped, this equipment could easily be lost to

other projects for long periods of time (two or more years). Other contractors owning similar equipment will commonly have their equipment committed and not available to start work on short notice. Furthermore, better safety performance and lower construction costs result from a continuous reclamation operation that utilizes the same equipment and crews on an ongoing basis. The cost of a full mobilization and demobilization for a phased project is considerable. Ongoing mobilization cost can be reduced by identifying off highway routes to "road" rock trucks and scrapers between Tyrone, Chino and Cobre. Paved road crossing can be temporarily protected with steel trench plates or similar means.

7.2.1.2.1.4 In that this is a performance bond estimate, a single mobilization is assumed. Mobilization is calculated at $400,000 initial plus sustaining annual mobilization at $100,000.

7.2.1.2.2 Contingency Allowances

7.2.1.2.2.1 Only to cover unforeseeable or unanticipated costs not already included in the assumptions used to estimate the given scope of work.

7.2.1.2.2.2 Contingency does not include allowance for items outside of scope.

7.2.1.2.2.3 Contingency is calculated as a fixed percentage of total direct costs and can vary with size of project from 10% to 2%; i.e., small to large projects.

7.2.1.2.2.4 2% has been used for this estimate.

7.2.1.2.3 Engineering Redesign Costs

7.2.1.2.3.1 In the event of bond forfeiture, the conditions and assumptions used in the permit application will be reviewed.

7.2.1.2.3.2 Some aspects of the site conditions and assumptions used at the time of the bond issue may have changed and an engineering redesign may be necessary.

7.2.1.2.3.3 Documents to be reviewed, and possibly revised include:

- Site plans and maps to show the size of the reclamation area
- Quantity survey of topsoil and overburden stockpiles
- Soils analysis to identify any special handling requirements
- Structural analysis for demolition and removal
- Evaluation of impoundments and roads for special handling requirements
- Assessment of completed reclamation areas for compliance with permit
- Contract documents

7.2.1.2.3.4 2.5 to 6% of total direct costs is a baseline estimate. Percentages outside this range will include an explanation.

7.2.1.2.3.5 4.5% is used for this estimate.

7.2.1.2.4 Profit & Overhead

7.2.1.2.4.1 Work is performed by a third party. This is the allowance for the third-party contractor's profit and overhead. Profit and overhead are calculated separately.

Profit Margin:

7.2.1.2.4.2 30% for small jobs to 3% for very large jobs of total direct costs is a baseline estimate.

7.2.1.2.4.3 Actual costs estimates for required profit margin to accept/bid the work will be a function of the financial conditions of available contractors at the time of the work.

7.2.1.2.4.4 4% is used for this estimate.

Overhead:

7.2.1.2.4.5 5% to 7% total direct costs is a minimum baseline estimate. 20% is more common.

7.2.1.2.4.6 Costs of equipment, labor and materials not already included in the estimate. Normally these include:

- Temporary storage
- Temporary office equipment and facilities
- Temporary utilities
- Insurance
- Taxes (Gross Receipts not included)
- Security
- Permits
- Supervisor pickups
- Project supervision
- Temporary building equipment maintenance
- Equipment maintenance overhead

7.2.1.2.4.7 21% is used for this estimate.

7.2.1.2.5 Construction Management/Cost Control Fee

7.2.1.2.5.1 Costs of hiring third-party inspection and supervision of contractor reclamation work.

7.2.1.2.5.2 Items considered additional costs include such things as Dam inspections.

7.2.1.2.5.3 5% is used for this estimate.

7.2.1.2.5.4 Major indirect costs have been assumed as follows:

- Engineering Redesign
  4.5% Total Constructed Cost
- Const. Mgmt/Project Controls
  5% Total Constructed Cost
- Mob. and Demob.
  5% Total Constructed Cost
- Contingency
  2% Total Constructed Cost
- Profit
  4% Total Constructed Cost
- Overhead
  21% Total Constructed Cost
- Storm Water Prevention
  0.1% Total Constructed Cost

7.2.1.2.6 A budget will be included for the State of New Mexico:

- Reclamation Mgmt. Fee
  2% Total Constructed Cost

7.2.1.2.7 Bottom Line Costs

Total Capital Costs = Direct Costs + Indirect Costs

7.2.2 General Basis of Capital Cost Estimate

7.2.2.1 The cost estimates are prepared largely according to procedures outlined in the Financial Assurance Calculation Handbook, attachment 4, in the Draft MMD Closeout Plan Guidelines (MMD, 1996).

7.2.2.2 All costs are in fourth quarter 2001 dollars.

7.2.2.3 Construction site will be available to the general contractor 24 hours per day, Monday through Sunday.

7.2.2.4 Labor rates are based on merit shop wages – 45 hour work weeks; i.e., 5 hours of overtime each week per worker.

7.2.2.5 The estimate assumes that the project will be awarded to one general contractor per major unit of work and that only one mobilization will be required.

7.2.2.6 The contingency included in this estimate is for the Scope of Work as defined. It is not for items outside the present Scope of Work.

7.2.2.7 Owner will not supply any construction equipment (such as dozers or haul trucks or water trucks) to the project.

7.2.2.8 Contractor can have his trailer and laydown yard near the construction site. Construction personnel can park their personal vehicles as well as construction vehicles near the construction site.

7.2.2.9 Quantities estimated are based on computer-aided grading plans and grading sections using the best available drawings.

7.2.2.10 Vegetating ground cover is estimated in terms of acreage.

7.2.2.11 Quantities for constructing berms, adapted vee ravines and adapted river beds (washes) are estimated per lineal foot based on designed cross-section.

7.2.2.12 Current practice construction methodology has been developed for each of the units requiring reclamation. Such methodology is indicated for each of the units; e.g., pushdown with D10 dozers.

7.2.2.13 Earthmoving cost estimates were developed using the following sources:

- M3 Historic Database for Hard Rock Mining.
- The Caterpillar Performance Handbook, Caterpillar Inc., 29th Edition, October 1998.
- R.S. Means Heavy Construction Cost Data, McGraw-Hill, 15th Edition, 2001.
- Equipment Watch, Intertec Publishing

7.2.2.14 All work will be performed by a third-party contractor engaged by the State of New Mexico through open competitive bid.

7.2.2.15 Third-party contractors who are regularly engaged in heavy construction contracting are available in sufficient numbers to allow at least three bids for all work items; i.e., subprojects shall be small enough to allow competitive bidding.

7.2.2.16 All equipment units will be mobilized for the project. No equipment currently on-site will be used for construction operations unless legally transferred to an entity and made available on a contracted basis. For pushdown work for the comparison case, at least 7,000,000 cubic yards of material is estimated to be closed annually.

7.2.2.17 There will be no excessively restrictive times of completion or liquidated damages specified in the contract documents.

7.2.2.18 Material handling plans are included for stockpile pushdown, tailings pushdown, adaptive river beds, and adaptive vee-ravines. Matrices of cost information are provided for each.

7.2.2.19 The materials handling plans take into account the following factors:

- Material Type
- Bank Density.....R.O.M. stockpile..... 1.64 tons/cy
- Bank Density.....Tailings .....1.4 to 1.6 tons/cy
- Specific Gravity for Tailings (wet).....4.5
- Bank Density.....Gila Conglomerate..... 1.5 tons/cy
- Shrinkage Factor @ 10% for backfilling
- Swell Factor @ 40% for haul units
- Traction Factor
- Load Factor
- Crew Composition
- Crew Efficiency @ 90%
- Machine Types
- Altitude @ 1.0 per caterpillar chart

7.2.2.20 Material handling plans use the following general methodology:

- Estimate payload (bcy/ld = Bank Cubic Yards per Load)
- Estimate payload.....651 Scraper .....32 bcy/ld
- Estimate payload.....785 Truck.....85 bcy/ld
- Establish machine weight (GMW) (machine weight plus payload)
- Calculate usable pull (loaded and empty) for traction limitation. Traction factor given in table, page 26-2 in Cat Performance Handbook (use grades in layout typically @ less than 15% with sufficiently rough surface)
- Derate equipment for altitude using table, page 26-5 in Cat Performance Handbook @ 0%
- Determine material quantities:
  Cover material (CCY)
  Bank material required (BCY)

- Develop haul distances from haul route maps (centroid of borrow area to centroid of placement area)
- Calculate grade along temporary haul route @ less than 15%
- Develop rolling resistance factors for production machines using table, page 26-1 in Cat Performance Handbook (RR)
- Estimate cycle time (see travel time charts in Cat Performance Handbook for respective machines)
- Estimate production (using Cat FPC software on typical hauls):
  - Cycles per hour
  - Estimated load
  - Adjust production for efficiency (apply efficiency factor)
  - Balance equipment spread for maximum production (see machine loading matches table, page 21-14 in Cat Performance Handbook)
  - Determine hourly fleet production
- Estimate compaction (shrinkage factor) @ 10%
- Estimate total hourly cost (check on unit rates)
- Calculate unit cost per compacted cubic yard (CCY) for each component. Develop average in-place unit cost

7.2.2.21 Material Handling Equipment Spreads:

EQUIPMENT SPREADS:

Spread	Qty	Description
D	1	FOREMAN
	1	3/4 TN PICKUP
	1	GRADESETTER
	2	D10R DOZER/RIPPER
	1	10M TANKER
S6	1	FOREMAN
	1	3/4 TN PICKUP
	1	GRADESETTER
	1	D10R DOZER/RIPPER
	2	D10R DOZER/PUSHER
	6	651 SCRAPERS
	1	16 BLADE
	1	666 TRACTOR
	1	18' BOX BLADE
	2	10M TANKER
S8	1	FOREMAN
	1	3/4 TN PICKUP
	1	GRADESETTER
	1	D10R DOZER/RIPPER
	2	D10R DOZER/PUSHER
	8	651 SCRAPERS
	2	16 BLADE
	1	666 TRACTOR
	1	18' BOX BLADE
	2	10M TANKER
S10	1	FOREMAN
	1	3/4 TN PICKUP
	1	GRADESETTER
	1	D10R DOZER/RIPPER
	2	D10R DOZER/PUSHER
	10	651 SCRAPERS
	2	16 BLADE
	1	666 TRACTOR
	1	18' BOX BLADE
	2	10M TANKER
R4	1	FOREMAN
	1	3/4 TN PICKUP
	1	GRADESETTER
	1	D10R DOZER/RIPPER
	1	CAT 5230 SHOVEL
	4	785 ROCK TRUCKS
	1	16 BLADE
	1	10M TANKER
R5	1	FOREMAN
	1	3/4 TN PICKUP
	1	GRADESETTER
	1	D10R DOZER/RIPPER
	1	CAT 5230 SHOVEL
	5	785 ROCK TRUCKS
	1	16 BLADE
	1	10M TANKER

Spread	Qty	Description
R6	1	FOREMAN
	1	3/4 TN PICKUP
	1	GRADESETTER
	1	D10R DOZER/RIPPER
	1	824 RUBBER TIRED DOZER
	1	CAT 5230 SHOVEL
	6	785 ROCK TRUCKS
	1	16 BLADE
	1	10M TANKER
R8	1	FOREMAN
	1	3/4 TN PICKUP
	1	GRADESETTER
	1	D10R DOZER/RIPPER
	1	824 RUBBER TIRE DOZER
	1	CAT 5230 SHOVEL
	8	785 ROCK TRUCKS
	1	16 BLADE
	1	10M TANKER
DR4	1	FOREMAN
	1	3/4 TN PICKUP
	1	GRADESETTER
	2	D10R DOZER/RIPPER
	1	CAT 5230 SHOVEL
	4	785 ROCK TRUCKS
	1	16 BLADE
	1	10M TANKER
DR5	1	FOREMAN
	1	3/4 TN PICKUP
	1	GRADESETTER
	2	D10R DOZER/RIPPER
	1	CAT 5230 SHOVEL
	5	785 ROCK TRUCKS
	1	16 BLADE
	1	10M TANKER
DR6	1	FOREMAN
	1	3/4 TN PICKUP
	1	GRADESETTER
	2	D10R DOZER/RIPPER
	1	824 RUBBER TIRED DOZER
	1	CAT 5230 SHOVEL
	6	785 ROCK TRUCKS
	1	16 BLADE
	1	10M TANKER
DR8	2	FOREMAN
	1	3/4 TN PICKUP
	1	GRADESETTER
	2	D10R DOZER/RIPPER
	1	824 RUBBER TIRED DOZER
	1	CAT 5230 SHOVEL
	6	785 ROCK TRUCKS
	1	16 BLADE
	1	10M TANKER

7.2.2.22 Rock armor has been placed at 30% in the cover on the slopes only. M3 assumes that such fill is available. However, in addition, M3 has provided a rock makeup allowance equal to 30% of the top 6" of cover.

7.2.2.23 Borrow pits have been identified as to type and location. Estimates have been based on closest available borrow pit assuming sufficient capacity.

7.2.2.24 Diesel fuel cost has been assumed at $1.25/gallon.

7.2.2.25 In general, material movement of less than 400 feet average is anticipated to be accomplished with dozers. In the case of trimming tailing dam faces, a D11 carry dozer will be employed to extend maximum average pushdown length from 400 feet to 600 feet. Material relocation between 400 average to 4,000 feet average is anticipated to be accomplished with scrapers. Material relocation over 4,000 feet average is anticipated to be accomplished with loaders and trucks.

7.2.2.26 Miscellaneous areas have been allowed for on the basis of 18 inches of cover for the proposed plan and 36 inches of cover for the comparison case.

7.2.2.27 Below grade foundation and utilities have been left in place.

7.2.2.28 All plant site debris and other constructed facilities debris can be disposed of in an on-site disposal area yet to be reclaimed.

7.2.2.29 For indirect costs, the work is assumed to be one large project.

7.2.2.30 Outslopes at 3 horizontal to 1 vertical or flatter will be covered. Only covered slopes will be seeded. Angle of repose slopes on stockpiles and tailing piles will not be covered or revegetated.

7.2.2.31 An allowance of $885 an acre has been used for seeding/mulching/surface roughening (divots) of covered areas.

7.2.2.32 Hourly rates used for these estimates are as follows:

Classification	Straight Time	Overtime
Carpenter – 01	32.57	45.05
Carpenter – 03	29.85	41.08
Carpenter – Foreman	36.39	55.80
Concrete Finisher – 01	24.24	33.74
Concrete Finisher – 02	25.43	35.48
Driver – 01	20.07	27.61
Driver – 02	21.19	29.23
Driver – 03	22.89	31.70
Driver – 04	27.44	38.30
Foreman – 01	28.96	40.24
Foreman – 02	30.37	42.29
Foreman – 03	32.49	45.37
Ironworker – 02	20.42	27.84
Ironworker – 03	23.49	32.33
Ironworker – 04	25.41	35.14
Ironworker – 05	28.10	39.06
Ironworker – 06	30.02	41.87
Laborer – 01	15.17	20.49
Laborer – 02	17.42	23.76
Laborer – 03	20.25	27.86
Laborer – 04	23.07	41.87
Millwright – 02	19.01	25.74
Millwright – 03	21.82	29.82
Millwright – 04	23.57	32.38
Millwright – 05	26.03	35.95
Millwright – 06	27.78	38.50
Operator – 01	22.82	31.60
Operator – 02	27.10	37.82
Operator – 03	28.55	39.92
Pipefitter – 02	18.74	25.33
Pipefitter – 03	21.50	29.34
Pipefitter – 04	23.22	31.85
Pipefitter – 05	25.63	35.36
Pipefitter – 06	27.35	37.86
CLERK	16.56	22.47
ENGINEER	32.46	--
CRAFT SUPERINTENDENT	47.41	--

Per Diem, if applicable, shall be added at $3.75 per hour.

7.2.2.33 Pits have been encircled for protection with a covered and seeded security berm.

7.2.2.34 Top surface runon berms are provided by Phelps Dodge operations as part of ongoing operations surface water control.

7.3 Cost Components by Mine Unit

7.3.1 Stockpiles

7.3.1.1 Top Surface

- Perimeter berm
- Runon control berms where required
- Rip compacted surface
- Spread cover
- Seed & mulch

7.3.1.2 Outslopes

- Bench & drainage ditches

7.3.1.3 Toe Controls

- Demolish, fill & cover unused surface water or PLS ponds
- Construct collection & delivery systems to any required water treatment facility
- Seed & mulch any covered areas

7.3.2 Tailing Ponds

7.3.2.1 Top Surface

- Construct runon protection as required (berms or channels)
- Construct spillways
- Spread cover material
- Spread rock armor as required
- Construct perimeter berms (at crests)
- Seed & mulch top surface

7.3.2.2 Outslopes

- Grade surface (no imported fill) to smooth rills, gullies
- Construct three dimensional surface relief where feasible
- Protect ravines (gravel, rip rap)
- Construct vee-ditches to reduce slope lengths
- Place cover material
- Place rock armor (30% in top 6" of surface)
- Seed & mulch

7.3.2.3 Toe Controls

- Construct surface drainageways (channels) to carry runoff from outslope and spillways to existing, natural drainage

7.3.2.4 Other

- Cover pipelines/launders
- Seed & mulch covered areas

7.3.3 Mine Pits

7.3.3.1 Pit Crest

- Construct berm around perimeter to control runon & access
- Seed & mulch berm
- Berm dimensions: 5 ft. high, 10 ft. top width with 3:1 side slope

7.3.3.2 Pit Walls

- (No remediation required). Maintain existing roads for access to pit bottom

7.3.3.3 Pit Bottom (Sump)

- Establish control system

7.3.4 Reservoirs/Dams/Impoundments

7.3.4.1 Reclamation

- Grade to achieve positive drainage
- Place cover materials
- Seed & mulch

7.3.4.2 Interface Piping

7.3.5 Disturbed Areas

7.3.5.1 Reclamation

- Salvage process buildings (no credit assumed)
- Remove non-functional power lines
- Cover (bury) non-functional pipelines and building foundations
- Construct erosion controls
- Rip compacted, out-of-service roads
- Seed & mulch covered and ripped surfaces

7.3.6 Borrow Areas

7.3.6.1 Reclamation

- Grade all slopes to stable configuration
- Borrow pit bottom to be ripped
- Seed & mulch bottom and slopes
- Borrow pits can be used for runoff/sedimentation control; i.e., detention ponds

7.4 Capital Cost Estimates

7.4.1 Backup Material Takeoff

Backup material takeoff information and costing are contained in the following pages for both estimates.

7.4.2 Summaries

Summary tables for the Proposed Plan and Comparison Case are on the following pages.

7.4.1
Material take-off
Stockpiles pushdown

Description	Volume	
	4:1 Slope	
	Cut Cu. Yd.	Fill Cu. Yd.
West Stockpile	18426151	18533370
South Stockpile	31586096	31016855
Southwest Lampbright Stockpile	4054808	4201509
Northeast Stockpile	3054212	2720195
Main Lampbright Stockpile	16821767	15815041
South Lampbright Stockpile	13763019	14306008
North Lampbright Stockpile	1348063	1432542

* note: Northeast Stockpile cannot be compensate within the 5% for slope 4:1 because the State Highway 152 and the pit are interference for the Stockpile.

4.2

terial take-off

Stockpiles cover

Code	Description	Top Area		Slope Cover Volume	Toe Perimeter	Slope Length
		1.5:1 Slope sq ft	4:1 Slope sq ft	4:1 Slope cy	4:1 Slope ft	4:1 Slope ft
A1	West Stockpile	6,131,917	3,688,865	1,048,777	13,288	2,320
A2	South Stockpile	8,886,851	3,752,937	1,568,564	23,485	2,256
A3	Southwest Lampbright	1,738,219	815,235	274,731	10,180	1,248
A4	Northeast Stockpile	821,860	322,204	252,041	8,000	990
A5	Main Lampbright Stockpile	7,462,964	3,697,658	889,927	17,934	1,617
A6	South Lampbright Stockpile	4,081,780	1,279,253	575,157	10,581	1,767
A7	North Lampbright Stockpile	7,671,917	6,871,084	146,321	7,934	456

Slope Cover Volume is for a cover thickness of: 18 inches

4.3
Material take-off
Stockpiles cover

Code	Description	19 Inch Average Thickness 1.5:1 Slope	19 Inch Average Thickness 4:1 Slope	36 Inch Average Thickness 1.5:1 Slope	36 Inch Average Thickness 4:1 Slope
A1	West Stockpile	359,588	216,322	681,324	409,874
A2	South Stockpile	521,142	220,080	987,428	416,993
A3	Southwest Lampbright	101,933	47,807	193,135	90,582
A4	Northeast Stockpile	48,195	18,895	91,318	35,800
A5	Main Lampbright Stockpile	437,643	216,838	829,218	410,851
A6	South Lampbright Stockpile	239,364	75,018	453,531	142,139
A7	North Lampbright Stockpile	449,896	402,934	852,435	763,454
	Total	2,157,761	1,197,893	4,088,390	2,269,693

4.4

Material take-off

Stockpiles cover

Code	Description	24 Inch Average Thickness 1.5:1 Slope	24 Inch Average Thickness 4:1 Slope	36 Inch Average Thickness 1.5:1 Slope	36 Inch Average Thickness 4:1 Slope
A1	West Stockpile	0	1,398,369	0	2,097,554
A2	South Stockpile	0	2,091,419	0	3,137,128
A3	Southwest Lampbright	0	366,308	0	549,462
A4	Northeast Stockpile	0	336,055	0	504,082
A5	Main Lampbright Stockpile	0	1,186,569	0	1,779,854
A6	South Lampbright Stockpile	0	766,876	0	1,150,314
A7	North Lampbright Stockpile		195,095		292,642
	Total	0	6,340,691	0	9,511,036

Capital Cost Summary Table (Operating Costs not Included)	Proposed Plan Nominal 18" Tails Top 24" Stockpile Tops & 24" Tails Slopes Angle of Repose	Comparison Case Nominal 36" Tails Top 36" Stockpile Tops & 36" Tails Slopes 4:1 (Overall)
Chino		
Stockpiles	$13,032,810	$143,807,599
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Note: All cases having 1.5:1 stockpile outslopes do not include cover or revegetation of the slopes		

Prepard by: C. Huss, A. Gonzales, D. Clark

Chino Facility Assurance Estimate		Proposed Plan	Comparison Case
		Nominal 18" Tails Top 24" Stockpile Tops & 24" Tails Slopes	Nominal 36" Tails Top 36" Stockpile Tops & 36" Tails Slopes
		Angle of Repose	4:1 (Overall)
1	Stockpiles		
A	Top Surface		
	Perimeter berm	Included in Cover Costs	
	Runon control berm	Not considered in this estimate	
	Rip compacted surface	$1,805,572	$1,038,689
	Spread cover	$5,579,588	$4,637,861
	Seed & mulch	$783,046	$450,462
B	Outslopes		
	Pushdown 4:1 volumes		$75,267,628
	Bench & drainage ditch	$500,000	$1,396,522
	Spread cover on Slope	$0	$18,013,686
	Seed , mulch & divot cover		$1,915,413
C	Toe Controls		
	Demolish, fill & cover unused surface water or PLS ponds	$500,000	$500,000
	Construct interfaces for collection & delivery systems to any required water treatment facility	$100,000	$100,000
	Seed & mulch any covered areas		
	Subtotal	$9,268,206	$103,320,260
2	Tails Ponds		
A	Top Surface		
	Construct runon protection as required (berms or channels)	$40,053	$40,053
	Construct spillways	$1,226,111	$1,226,111
	Spread cover materials	$9,626,072	$18,238,873
	Spread rock armor as required	$0	$0
	Construct perimeter berms (at crests)	Included in cover costs	Included in cover costs
	Seed & mulch top surface	$2,698,637	$2,698,637
B	Outslopes		
	Grade surface (no imported fill) to smooth rills, gullies	Included in cover costs	Included in cover costs
	Construct 3D surface relief	$842,227	$842,227

Chino Facility Assurance Estimate		Proposed Plan	Comparison Case
		Nominal 18" Tails Top 24" Stockpile Tops & 24" Tails Slopes	Nominal 36" Tails Top 36" Stockpile Tops & 36" Tails Slopes
		Angle of Repose	4:1 (Overall)
	Protect ravines (gravel, rip rap)	$268,645	$268,645
	Construct vee-ditches to reduce slope lengths	$788,174	$788,174
	Place cover material	$3,013,093	$4,456,530
	Place rock armor (30% of surface)	$1,611,206	$1,611,206
	Seed , mulch & divot cover	$659,392	$659,392
C	Toe Controls		
	Construct surface drainageways (channels) to carry runoff outslope and spillways to existing interceptor/pumpback systems	$465,043	$465,043
D	Other		
	Cover pipelines/launders	Included in toe control allowance	Included in toe control allowance
	seed & mulch covered areas	Included in toe control allowance	Included in toe control allowance
	Subtotal	$21,238,654	$31,294,892
3	Pits		
A	Crest		
	Construct berm around perimeter to control runon & access	$210,000	$210,000
	Seed & mulch berm	$40,000	$40,000
	Berm dimensions: 5 ft high, 10 ft top width with 3:1 side slope		
B	Pit Walls		
	(No remediation required). Maintain existing roads for access to pit bottom		
C	Pit Bottom (Lake)		
	Control system for pit lake level with established water management scheme	$50,000	$50,000
	Subtotal	$300,000	$300,000
4	Reservoirs/Dams/Impoundments/Water Treatment		
A	Reclamation		
	Grade to achieves positive drainage	To be determined at the end of use	To be determined at the end of use

Chino Facility Assurance Estimate		Proposed Plan	Comparison Case
		Nominal 18" Tails Top 24" Stockpile Tops & 24" Tails Slopes Angle of Repose	Nominal 36" Tails Top 36" Stockpile Tops & 36" Tails Slopes 4:1 (Overall)
	Place cover materials		
	Seed & mulch cover		
B	Continued use		
	Comingling Pond @ Tails	$88,782	$88,782
	Degritting Basin @ Water Treatment & Tails	$190,200	$190,200
	Sludge Disposal Facility	$826,218	$826,218
	Interceptor Wells	$1,400,000	$2,800,000
	Water Treatment Plant/Irrigation	$6,975,493	$6,975,493
	Subtotal	$9,480,693	$10,880,693
5	Disturbed Areas		
A	Reclamation		
	Grade all slopes to stable configuration		
	Place cover materials	$1,938,772	$3,877,543
	Borrow pit bottom to be ripped	$1,289,335	$2,322,914
	Seed & mulch bottom and slopes	$1,072,514	$1,520,760
	Borrow pits can pool water and be used for runoff/sedimentation control		
	Subtotal	$4,300,621	$7,721,218
	Total Direct Cost	$44,588,173	$153,517,063
	Indirect Cost		
	Engineering Redesign @4.5%	$2,006,468	$6,908,268
	Construction Management/Project Controls @5%	$2,229,409	$7,675,853
	Mobilization and Demobilization	$900,000	$900,000
	Contingency @2%	$891,763	$3,070,341
	Profit @4%	$1,783,527	$6,140,683
	Overhead @21%	$9,363,516	$32,238,583
	Storm Water Prevention Plan @0.1%	$44,588	$153,517

Chino Facility Assurance Estimate	Proposed Plan	Comparison Case
	Nominal 18" Tails Top 24" Stockpile Tops & 24" Tails Slopes Angle of Repose	Nominal 36" Tails Top 36" Stockpile Tops & 36" Tails Slopes 4:1 (Overall)
Reclamation Monitoring Fee @2%	$891,763	$3,070,341
Total Cost	$62,699,208	$213,674,649
Stockpiles	$13,032,810	$143,807,599
Tails Ponds	$29,865,470	$43,558,188
Pits	$421,855	$417,559
Reservoirs/Dams/Impoundments/Water Treatment	$13,331,605	$15,144,429
Disturbed Areas	$6,047,467	$10,746,874

Chino Mine - Material Take-Off of Cover Material for Stockpiles - Raw Data for Final Volumes

Code	Description	Top Area 1.5:1 Slope sq ft	4:1 Slope sq ft	Slope Cover Area 4:1 Slope sf	Toe Perimeter 4:1 Slope ft	Slope Length 4:1 Slope ft	Ditch lf	Cost Ditches	
A1	West Stockpile	6,131,917	3,688,865	18,877,986	13288	2320	21,100	$403,652	
A2	South Stockpile	8,886,851	3,752,937	28,234,152	23485	2256	24,600	$470,609	
A3	Southwest Lampbright Stockpile	1,738,219	815,235	4,945,158	10180	1248		$0	
A4	Northeast Stockpile	821,860	322,204	4,536,738	8000	990		$0	
A5	Main Lampbright Stockpile	7,462,964	3,697,658	16,018,686	17934	1617	14,500	$277,391	
A6	South Lampbright Stockpile	4,081,780	1,279,253	10,352,826	10581	1767	12,800	$244,870	
A7	North Lampbright Stockpile	7,671,917	6,871,084	2,633,778	7934	456		$0	
	Upper South Stockpile	392,040	392,040	6,229,080				$0	
	East Pit Access	217,800	217,800	1,742,400	6878	255		$0	
	Northwest Stockpile	871,200	871,200					$0	
	North Stockpile	217,800	217,800	653,400	4953	162			
	Groundhog No 5 Stockpile	43,560	43,560	43,560	434	66			
	Total	38,537,908	22,169,636	94,267,764			73,000	$1,396,522	
		885	509	2,164	acres				

Description	Proposed Plan Cover	Outslope	Seepage	Interceptor	Runoff	Seed	Channels	Total	Comparison Case Cover	Outslope	Seepage	Interceptor	Runoff	Seed	Channels	Total		
			0.3	0.4	0.3						0.4	0.5	0.1					
South Stockpile	$1,917,377	$0				$253,916	$405,143	$2,576,436	$7,077,741	$37,990,655				$904,629	$796,394	$46,769,418	0.186	0.171
Northeast Stockpile	$232,256	$0				$23,482	$51,830	$307,568	$1,521,898	$2,763,880				$137,416	$12,137	$4,435,331	0.022	0.029
Upper South Stockpile	$25,829	$0				$11,201	$55,042	$92,072	$25,565	$0				$187,252	$14,768	$227,586	0.049	0.04
Northwest Stockpile	$57,397	$0				$24,892	$19,073	$101,362	$56,812	$0				$24,638	$32,818	$114,268	0	0
North Stockpile	$67,140	$0				$6,223	$9,642	$83,005	$315,184	$0				$24,638	$8,204	$348,026	0.006	0.007
East Pit Access	$67,140	$0				$6,223	$17,764	$91,127	$691,409	$0				$55,437	$8,204	$755,050	0.013	0.012
Main Lampbright Stockpile	$2,300,581	$0				$213,232	$282,861	$2,796,675	$7,052,695	$18,490,385				$557,599	$525,379	$26,626,058	0.103	0.117
South Lampbright Stockpile	$1,258,276	$0				$116,625	$166,579	$1,541,479	$4,102,051	$16,726,077				$328,967	$389,014	$21,546,109	0.059	0.034
North Lampbright Stockpile	$2,364,995	$0				$219,202	$187,605	$2,771,802	$3,731,794	$1,674,877				$268,808	$258,830	$5,934,309	0.05	0.063
Southwest Lampbright Stockpile	$347,615	$0				$49,665	$74,938	$472,218	$1,154,198	$4,385,942				$162,910	$30,709	$5,733,759	0.029	0.029
Groundhog No 5 Stockpile	$13,428	$0				$1,245	$1,279	$15,951	$32,939	$29,980				$2,464	$1,641	$67,023	0.001	0.001
West Stockpile	$1,732,866	$0				$175,202	$275,047	$2,183,114	$7,211,266	$22,700,395				$638,214	$700,786	$31,250,661	0.155	0.164
																	0.2	0.2
Total	$10,384,899	$0	$0	$0	$0	$1,101,108	$1,546,803	$13,032,810	$32,973,552	$104,762,192	$0	$0	$0	$3,292,972	$2,778,884	$143,807,599	0.665	0.667
	$7,385,160	$0	$0	$0	$0	$783,046	$1,100,000	$13,032,810								$143,807,599		
	$7,385,160							$9,268,206										
Pit	0	0	0	0	$2,666,321	0	$421,855	$3,088,176	0	0	0	0	$3,028,886	0	$417,559	$3,446,444		

Chino Mine - Material Take-Off of Cover Material for Stockpiles - Final Volumes

Code	Description	Volumes for Cover on Flat Tops (Haul 25 1.5:1 Slope	36 4:1 Slope	Distance Ft	Unit Cost	Total Cover Cost 25 1.5:1 Slope	36 4:1 Slope	Reclamation Cost 1.5:1 Slope	4:1 Slope	Rip Top Cost 1.5:1 Slope	4:1 Slope	Total Top Cover Cost Direct 1.5:1 Slope	4:1 Slope	Total Top Cover Cost Including Indirect 1.5:1 Slope	4:1 Slope
A1	West Stockpile	473,142	409,874	10500	$2.00	$945,025	$818,658	$124,594	$74,954	$287,292	$172,830	$1,356,911	$1,066,442	$1,908,067	$1,484,340
A2	South Stockpile	685,714	416,993	4100	$1.38	$947,166	$575,986	$180,571	$76,255	$416,365	$175,832	$1,544,102	$828,074	$2,171,293	$1,152,565
A3	Southwest Lampbright Stockpile	134,122	90,582	100	$1.24	$165,766	$111,953	$35,319	$16,565	$81,439	$38,195	$282,523	$166,713	$397,280	$232,041
A4	Northeast Stockpile	63,415	35,800	12300	$2.00	$126,662	$71,506	$16,699	$6,547	$38,506	$15,096	$181,866	$93,148	$255,738	$129,650
A5	Main Lampbright Stockpile	575,846	410,851	14500	$2.23	$1,286,391	$917,806	$151,639	$75,132	$349,654	$173,242	$1,787,684	$1,166,180	$2,513,814	$1,623,163
A6	South Lampbright Stockpile	314,952	142,139	15000	$2.23	$703,576	$317,527	$82,937	$25,993	$191,239	$59,935	$977,753	$403,455	$1,374,901	$561,554
A7	North Lampbright Stockpile	591,969	763,454	15000	$2.23	$1,322,408	$1,705,491	$155,885	$139,613	$359,444	$321,923	$1,837,737	$2,167,027	$2,584,197	$3,016,203
	Upper South Stockpile							$7,966	$7,966	$18,368	$18,368	$26,334	$26,334	$37,030	$36,653
	East Pit Access	16,806	24,200	15000	$2.23	$37,542	$54,061	$4,425	$4,425	$10,204	$10,204	$52,172	$68,691	$73,363	$95,608
	Northwest Stockpile				$2.23	$0	$0	$17,702	$17,702	$40,817	$40,817	$58,519	$58,519	$82,289	$81,451
	North Stockpile	16,806	24,200	15000	$2.23	$37,542	$54,061	$4,425	$4,425	$10,204	$10,204	$52,172	$68,691	$73,363	$95,608
	Groundhog No 5 Stockpile	3,361	4,840	15000	$2.23	$7,508	$10,812	$885	$885	$2,041	$2,041	$10,434	$13,738	$14,673	$19,122
	Total	2,876,132	2,322,933			$5,579,588	$4,637,861	$783,046	$450,462	$1,805,572	$1,038,689	$8,168,206	$6,127,011	$11,486,007	$8,527,957

Code	Description	Volumes for Cover on Slopes (cy) 36 Inch Average Thickness 4:1 Slope		Unit Cost	Total Cover Cost 36 Inch Average Thickness 4:1 Slope	Reclamation Cost 4:1 Slope	Bench & drainage ditch 1.5:1 Slope	Toe Controls 4:1 Slope	1.5:1 Slope	4:1 Slope	Total Outslope Cover Cost Direct 1.5:1 Slope	4:1 Slope	Total Outslope Cover Cost Including Indirect	
A1	West Stockpile	2,097,554	10500	$2.00	$4,189,531	$383,579	$100,130	$403,652	$95,468	$99,836	$195,598	$5,076,598	$275,047	$7,065,926
A2	South Stockpile	3,137,128	4100	$1.38	$4,333,268	$573,686	$149,755	$470,609	$138,360	$101,570	$288,115	$5,479,132	$405,143	$7,626,199
A3	Southwest Lampbright Stockpile	549,462	100	$1.24	$679,099	$100,480	$26,229	$0	$27,062	$22,064	$53,292	$801,642	$74,938	$1,115,776
A4	Northeast Stockpile	504,082	12300	$2.00	$1,006,824	$92,181	$24,063	$0	$12,796	$8,720	$36,859	$1,107,725	$51,830	$1,541,801
A5	Main Lampbright Stockpile	1,779,854	14500	$2.23	$3,976,043	$325,481	$84,964	$277,391	$116,192	$100,074	$201,155	$4,678,989	$282,861	$6,512,510
A6	South Lampbright Stockpile	1,150,314	15000	$2.23	$2,569,704	$210,358	$54,912	$244,870	$63,550	$34,622	$118,461	$3,059,553	$166,579	$4,258,477
A7	North Lampbright Stockpile	292,642	15000	$2.23	$653,737	$53,515	$13,970	$0	$119,445	$185,959	$133,414	$893,212	$187,605	$1,243,229
	Upper South Stockpile				$0	$126,568	$33,039	$0	$6,104	$10,610	$39,143	$137,178	$55,042	$190,933
	East Pit Access	193,600	15000	$2.23	$432,486	$35,404	$9,242	$0	$3,391	$5,895	$12,633	$473,784	$17,764	$659,442
	Northwest Stockpile	0	0	$2.23	$0	$0	$0	$0	$13,564	$23,578	$13,564	$23,578	$19,073	$32,818
	North Stockpile	72,600	15000	$2.23	$162,182	$13,276	$3,466	$0	$3,391	$5,895	$6,857	$181,353	$9,642	$252,419
	Groundhog No 5 Stockpile	4,840	15000	$2.23	$10,812	$885	$231	$0	$678	$1,179	$909	$12,876	$1,279	$17,922
	Total	9,782,076			$18,013,686	$1,915,413	$500,000	$1,396,522	$600,000	$600,000	$1,100,000	$21,925,621	$1,546,803	$30,517,451

Code	Description	Volumes for Cover on Toes (cy) 6 1.5:1 Slope	4:1 Slope	Haul Distance Ft	Unit Cost	Cost for Cover on Toes 1.5:1 Slope	4:1 Slope
A1	West Stockpile	0	57,089	10500	$2.00	$0	$114,027
A2	South Stockpile	0	98,115	4100	$1.38	$0	$135,525
A3	Upper South Stockpile	0	23,527	100	$1.24	$0	$29,078
A4	Northeast Stockpile	0	14,667	12300	$2.00	$0	$29,294
A5	Main Lampbright Stockpile	0	53,702	14500	$2.23	$0	$119,967
A6	South Lampbright Stockpile	0	34,623	15000	$2.23	$0	$77,346
A7	North Lampbright Stockpile	0	6,700	15000	$2.23	$0	$14,967
	East Pit Access	0	3,248	15000	$2.23	$0	$7,256
	Northwest Stockpile	0	0	0	$2.23	$0	$0
	North Stockpile	0	1,486	15000	$2.23	$0	$3,319
	Groundhog No 5 Stockpile	0	53	15000	$2.23	$0	$118
	Total	0	293,211			$0	$530,896

Acre 121

Material take-off
Stockpiles pushdown

Description	4:1 Slope		Slope Length 4:1 Slope ft	Unit Cost 4:1 Slope	Total Direct Co 4:1 Slope	Total Cost 4:1 Slope	Total Stockpile Cost 1.5:1 Slope	4:1 Slope
	Cut Cu. Yd.	Fill Cu. Yd.						
West Stockpile	18,426,151	18,533,370	2320	$ 0.88	$16,309,366	$22,700,395	$2,183,114	$31,250,661
South Stockpile	31,586,096	31,016,855	2,256	$ 0.88	$27,294,832	$37,990,655	$2,576,436	$46,769,418
Southwest Lampbright Stockpile	4,054,808	4,201,509	1,248	$ 0.75	$3,151,132	$4,385,942	$472,218	$5,733,759
Northeast Stockpile	3,054,212	2,720,195	990	$ 0.73	$1,985,742	$2,763,880	$307,568	$4,435,331
Main Lampbright Stockpile	16,821,767	15,815,041	1,617	$ 0.84	$13,284,634	$18,490,385	$2,796,675	$26,626,058
South Lampbright Stockpile	13,763,019	14,306,008	1,767	$ 0.84	$12,017,047	$16,726,077	$1,541,479	$21,546,109
North Lampbright Stockpile	1,348,063	1,432,542	1,767	$ 0.84	$1,203,335	$1,674,877	$2,771,802	$5,934,309
Upper South Stockpile							$92,072	$227,586
East Pit Access	0	0	255	$ 0.40	$0	$0	$91,127	$755,050
Northwest Stockpile	0	0	194	$ 0.40	$0	$0	$101,362	$114,268
North Stockpile	0	0	162	$ 0.40	$0	$0	$83,005	$348,026
Groundhog No 5 Stockpile	53,848	53,848	66	$ 0.40	$21,539	$29,980	$15,951	$67,023
Total	89,107,964	88,079,368			$75,267,628	$104,762,192	$13,032,810	$143,807,599

Chino Mine - Material Take-Off of Cover Material for Tailings Ponds - Raw Data for Final Volumes

	Area			Toe Perimeter		Outslopes		Ditch	Channel	Cost	Cost
	Top (acres)	Outslopes (acres)	Total (acres)	Exterior (ft)	Interior (ft)	Average Slope (ft)	Average Length (ft)	lf	lf	Ditches	Channels
Lake One	220	0	220	8500	0	0	0				
Tailing Pond 1	134	25	159	1417	2783	12.0	285				
Tailing Pond 2	120	30	150	2024	4610	7.2	221				
Axiflo Lake	88	3	91	1212	0	1.6	103				
Tailing Pond B	178	60	238	3443	3775	7.4	433	3,000		$57,391	$0
Tailing Pond C	98	60	158	5826	1785	3.2	315	2,500	5,200	$47,826	$126,609
Tailing Pond 4	318	44	362	5324	5054	4.3	183	1,500	4,000	$28,696	$97,391
Tailing Pond 6 West	339	86	425	5571	3610	3.7	448			$0	$0
Tailing Pond 6 East	356	72	428	8802	1793	3.6	266		3,400	$0	$82,783
Tailing Pond 7	1198	365	1563	27290	0	7.0	303	34,200	6,500	$654,261	$158,261
Total	3049	745	3794					41,200	19,100	$788,174	$465,043

The data in this table is reproduced from "Table 9. Summary of Tailing Pond Dimensions in 1998" as presented in the Revised Closure/Closout Plan Chino Mine, January 31, 1999, by Daniel B. Stephens & Associates, Inc.
Interior outslope lengths are negative values in these tables. Volumes for cover on toes are calculated as bands of material that occur along exterior outslopes and have a width of 10% of the average slope length.

Chino Mine - Material Take-Off of Cover Material for Tailings Ponds - Final Volumes

	Volume Tops (cy)		Volume Slopes (cy)		Volumes for Cover on Toes (cy)	Haul	Unit Cost	Cost For Tops		Cost For Slopes	
Average Layer Thickness (in)	19	36	24	36	6 Additional Thickness	Distance		19	36	24	36
						Ft		Proposed Plan	Comparison C	Proposed Pla	Comparison C
Lake One	561,978	1,064,800	0	0	0	1000	$1.24	$694,567	$1,316,022	$0	$0
Tailing Pond 1	342,296	648,560	80,667	121,000	748	1000	$1.24	$423,055	$801,577	$99,699	$149,548
Tailing Pond 2	306,533	580,800	96,800	145,200	828	1000	$1.24	$378,855	$717,830	$119,638	$179,458
Axiflo Lake	224,791	425,920	9,680	14,520	231	1000	$1.24	$277,827	$526,409	$11,964	$17,946
Tailing Pond B	454,691	861,520	193,600	290,400	2,761	1000	$1.24	$561,968	$1,064,782	$239,277	$358,915
Tailing Pond C	250,336	474,320	193,600	290,400	3,399	1000	$1.24	$309,398	$586,228	$239,277	$358,915
Tailing Pond 4	812,313	1,539,120	141,973	212,960	1,804	1000	$1.24	$1,003,966	$1,902,250	$175,470	$263,204
Tailing Pond 6 West	865,957	1,640,760	277,493	416,240	4,622	1000	$1.24	$1,070,265	$2,027,871	$342,963	$514,445
Tailing Pond 6 East	909,382	1,723,040	232,320	348,480	4,336	1000	$1.24	$1,123,936	$2,129,563	$287,132	$430,698
Tailing Pond 7	3,060,224	5,798,320	1,177,733	1,766,600	15,313	1000	$1.24	$3,782,235	$7,166,340	$1,455,600	$2,183,401
Total	7,788,501	14,757,160	2,403,867	3,605,800	34,041			$9,626,072	$18,238,873	$2,971,020	$4,456,530
Acres	3,049		745								
Borrow Areas (SF)	21,028,953	39,844,332	6,490,440	9,735,660							
Acres	483	915	149	224							
	632	1,138									

Chino Mine - Material Take-Off of Cover Material for Tailings Ponds - Final Volumes

Cost for Cover on Toes (c	Cost Runon	Spillways	Seed & Mulch		Construct Re	Protect Ravin	V Ditches	Armor Rock	Surface Drain	Total Direct Cost		Total Tails Cost	
6 Additional Thickness			Top	Slope									
Case Proposed Pla	Both	Both	Both	Both	Both	Both	Both	Both	Both	Proposed Plan	Comparison C	Proposed Plan	Comparison Ca
$0 $0	$2,890	$88,470	$194,720	$0	$0	$0	$0	$0	$0	$980,647	$1,602,102	$1,378,971	$2,229,906
$0 $924	$1,760	$53,886	$118,602	$22,127	$28,263	$9,015	$0	$54,067	$0	$811,398	$1,238,846	$1,140,976	$1,724,303
$0 $1,024	$1,576	$48,256	$106,211	$26,553	$33,915	$10,818	$0	$64,881	$0	$791,727	$1,189,498	$1,113,314	$1,655,618
$0 $286	$1,156	$35,388	$77,888	$2,655	$3,392	$1,082	$0	$6,488	$0	$418,125	$672,403	$587,961	$935,893
$0 $3,412	$2,338	$71,580	$157,546	$53,105	$67,830	$21,636	$57,391	$129,762	$0	$1,365,846	$1,984,886	$1,920,631	$2,762,688
$0 $4,200	$1,287	$39,409	$86,739	$53,105	$67,830	$21,636	$47,826	$129,762	$126,609	$1,127,079	$1,519,347	$1,584,881	$2,114,722
$0 $2,230	$4,177	$127,879	$281,458	$38,944	$49,742	$15,866	$28,696	$95,158	$97,391	$1,920,978	$2,904,768	$2,701,250	$4,043,037
$0 $5,712	$4,453	$136,324	$300,045	$76,118	$97,224	$31,011	$0	$185,992	$0	$2,250,108	$3,373,483	$3,164,067	$4,695,424
$0 $5,359	$4,677	$143,160	$315,092	$63,726	$81,396	$25,963	$0	$155,714	$82,783	$2,288,938	$3,432,773	$3,218,670	$4,777,948
$0 $18,926	$15,738	$481,758	$1,060,337	$323,058	$412,635	$131,618	$654,261	$789,383	$158,261	$9,283,809	$13,376,788	$13,054,750	$18,618,651
$0 $42,073	$40,053	$1,226,111	$2,698,637	$659,392	$842,227	$268,645	$788,174	$1,611,206	$465,043	$21,238,654	$31,294,892	$29,865,470	$43,558,188

Chino Mine - Material Take-Off of Cover Material for Tailings Ponds - Final Volumes

Proposed Plan					Comparison Case				
Cover	Outslope	Seed	Channels	Total	Cover	Outslope	Seed	Channels	Total
ase									
$976,690	$0	$273,812	$128,469	$1,378,971	$1,831,722	$0	$271,023	$127,160	$2,229,906
$812,416	$39,743	$197,891	$90,926	$1,140,976	$1,399,090	$39,338	$195,876	$90,000	$1,724,303
$793,648	$47,691	$186,690	$85,286	$1,113,314	$1,339,207	$47,205	$184,788	$84,417	$1,655,618
$417,025	$4,769	$113,259	$52,909	$587,961	$766,697	$4,721	$112,105	$52,370	$935,893
$1,313,965	$95,382	$296,215	$215,070	$1,920,631	$2,162,201	$94,411	$293,198	$212,879	$2,762,688
$959,914	$95,382	$196,647	$332,939	$1,584,881	$1,496,120	$94,411	$194,644	$329,547	$2,114,722
$1,795,450	$69,947	$450,545	$385,308	$2,701,250	$3,146,463	$69,234	$445,956	$381,384	$4,043,037
$2,256,831	$136,714	$528,955	$241,566	$3,164,067	$3,797,429	$135,322	$523,567	$239,106	$4,695,424
$2,210,721	$114,458	$532,688	$360,802	$3,218,670	$3,780,265	$113,293	$527,263	$357,128	$4,777,948
$8,501,995	$580,241	$1,945,308	$2,027,206	$13,054,750	$14,112,266	$574,331	$1,925,495	$2,006,559	$18,618,651
$20,038,654	$1,184,327	$4,722,009	$3,920,481	$29,865,470	$33,831,459	$1,172,264	$4,673,915	$3,880,550	$43,558,188

WTP

Water Treatment/ Irrigation Plant	Direct	Indirect	Total
Water Treament Plant	$6,089,089	$2,469,822	$8,558,911
Pumping			
In Pit Pumps 3@ 200 gpm	$42,686	$17,314	$60,000
Leach Stockpile Pumps 4@50 gpm	$11,383	$4,617	$16,000
Piping from Pit 200 gpm 26,400 lf	$93,909	$38,091	$132,000
In Pit Piping Installation	$93,909	$38,091	$132,000
Piping from Leach Stockpiles 50 gpm 26,400	$93,909	$38,091	$132,000
Leach Stockpile Piping Installation	$93,909	$38,091	$132,000
Water Treament Feed Ponds	$314,412	$127,530	$441,943
Retention/Detention Ponds	$142,287	$57,713	$200,000
Total Water Treatment/Irrigation	$6,975,493	$2,829,360	$9,804,854

Buildings

TAG NO.	DESCRIPTION	Size (LxWxH)	Volume	Cost	Salvage Value
	Mine Maintenance Facilities Area				
	Vehicle Maintenance	330'X185'X100	6,105,000	$1,465,200	$61,050
	Wash Shop	40'X25'	15,000	$3,600	$150
	Vehicle Maintenance	160'X40'X80'	512,000	$122,880	$5,120
	Maintenance Shop	230'X150'X50'	1,725,000	$414,000	$17,250
	Maintenance Shop			$0	
	Electrical Maintenance	180'X60'X25'	270,000	$64,800	$2,700
	Storage			$0	
	Warehouse	160'X60'X35'	336,000	$80,640	$3,360
	Mine Operations Office	130'X130'X15'	253,500	$60,840	$2,535
	Assay Lab	140'X60'X15'	126,000	$30,240	$1,260
	Security	40'X30'X12'	14,400	$3,456	$144
	Safety	100'X35'X12'	42,000	$10,080	$420
	Geology	60'X65'X12'	46,800	$11,232	$468
	Mine Planning/Engineering	200'X40'X15'	120,000	$28,800	$1,200
	Storage Shed			$0	
	Primary Crusher	31'X22'X8'	5,456	$1,309	$55
	Wash Shop Wastewater	80'X150'	180,000	$43,200	$1,800
	Diesel Storage Tanks	2@ 300,000 gal	1@ 125,000 g	$0	
	Assay Substation			$0	
	Surface Water			$0	
	SX/EW Plant Area				
	SX Maintenance	60'x70'x16'	67,200	$16,128	$672
	SX Warehouse	135'x65'x16'	140,400	$33,696	$1,404
	Electrowinning Tankhouse	70'6"x600'7"x30	1,395,555	$334,933	$5,000,000
	Sulfuric Acid Storage Tank	2 @ 18' D		$0	
	Mixer Settlers	6 each 75'x80'	288,000	$69,120	$2,880
	Raffinate Tank			$0	
	Tankfarm	290'x108'		$0	
	Water Treatment Building	20'x42'3"	12,675	$3,042	$127
	Pump House	20'x42'3"	16,900	$4,056	$169
	Water Tank	33'Dx29'H		$0	
	Plant Feed Pond	108'x238'		$0	
	Raffinate Pond	110'x330'		$0	
	Ivanhoe Concentrator/Precipitation Pant Area				
910	Guard House & Changehouse	100x40x15', 20x	65,100	$15,624	$651
300	Ivanhoe Concentrator	384x82x90, 264	7,038,720	$1,689,293	$13,200,000
930	Shop & Warehouse	140x250x25'	875,000	$210,000	$8,750
320	SAG Mill Recycle	48x63x57'	172,368	$41,368	$1,724
420	Tailing Pump House	115x60x25'	172,500	$41,400	$1,725
	Electric Room	30x40x15	18,000	$4,320	$180
730	Pump House	50x80	80,000	$19,200	$800
	Electric Room	40x15	9,000	$2,160	$90
85-TK-01	Process Water Storage Tank	90'Dx60'h		$0	
84-TK-04	Fresh Water Storage Tank	40'D		$0	
	Tailing Thickeners	2@380'Dx10'H		$0	
920	Laboratory	200x50X8"	80,000	$19,200	$800
	Cu/Moly Thickener	100'D		$0	

Buildings

TAG NO.	DESCRIPTION	Size (LxWxH)	Volume	Cost	Salvage Value
	Cu Thickener	100'D		$0	
85-TK-02	Process Water Head Tank	28'D		$0	
73-TK-02	Potable Water Storage Tank	15'D		$0	
73-TK-05	Fire Water Storage Tank	35'D		$0	
	Electrical Building @ Coarse Ore Conveyor	25x20'	6,000	$1,440	$60
340	Pump House	12x75x30'	27,000	$6,480	$270
410	Slurry Pump House	95x45'	862,600	$207,024	$8,626
820	Reagent Mix & Storage Building	45x60x30'	81,000	$19,440	$810
	Sewage Plant	30x12'	2,880	$691	$29
	Frother Tanks & Pumps Area	40x80'		$0	
	NaHS Storage Tank Area	50x30'		$0	
450	Slurry Storage Tanks	2@35'D		$0	
	Xanthate Tanks & Pumps Area, Burner Oil T	50x35'		$0	
	Fuel Oil Storage Tank	20'Dx15'		$0	
	Fuel Oil Storage Area	70x70		$0	
	Slaked Lime Tanks	2@20'D		$0	
	Slaked Lime Area	45x35		$0	
	Total			$5,078,893	$18,327,278

Disturbed Areas

Other Disturbed Areas	Proposed Plan								Comparison Case							
	Acres	SF	Cover @18" CY	Cover Cost	Revegetation	Rip Borrow	Total Direct	Total W/Indirects	Acres	SF	Cover @3' CY	Cover Cost	Revegetation	Rip Borrow	Total Direct	Total W/Indirects
Reservoirs	320	13,939,200	774,400	$1,069,667	$283,229		$1,352,896	$1,902,421	320	13,939,200	1,548,800	$2,139,334	$283,229		$2,422,563	$3,406,571
Facility Demolition	170	7,405,200	411,400	$568,261	$150,465		$718,726	$1,010,661	170	7,405,200	822,800	$1,136,521	$150,465		$1,286,987	$1,809,741
Pipeline Corridor	40	1,742,400	96,800	$133,708	$35,404		$169,112	$237,803	40	1,742,400	193,600	$267,417	$35,404		$302,820	$425,821
Misc Roads	50	2,178,000	121,000	$167,135	$44,254		$211,390	$297,253	50	2,178,000	242,000	$334,271	$44,254		$378,525	$532,277
Borrow Areas @ Tails	632	27,519,393			$559,163	$1,289,335	$1,848,497	$2,599,328	1,138	49,579,992			$1,007,409	$2,322,914	$3,330,323	$4,683,049
Total	1,212	52,784,193	1,403,600	$1,938,772	$1,072,514	$1,289,335	$4,300,621	$6,047,467	1,718	74,844,792	2,807,200	$3,877,543	$1,520,760	$2,322,914	$7,721,218	$10,857,459

Spillway

Chino Mines

Runon Control Berm			Unit Cost	Cost
Volume per lf	9.26	CY/lf		
Length	3,500	lf		
	32,407	CY	$1.24	$40,053
Spillway				
Gabion Mattresses	58092	sf	5.944444	$345,325
Gabion 12x3x3	648	ea	1125	$729,000
Gabion 6x3x3	12	ea	315	$3,780
Excavation	14,872	cy	$1.24	$18,381
Backfill	11,784	cy	0.23	$2,710
Filter Layer	2,152	cy	5.23	$11,253
Stilling Basin				
Gabion Mattress	6120	sf	5.944444	$36,380
Gabion 12x3x3	60	ea	1125	$67,500
Gabion 6x3x3	12	ea	315	$3,780
Excavation	1,549	cy	$1.24	$1,914
Backfill	1,452	cy	0.23	$334
Filter Layer	227	cy	5.23	$1,185
Jersey Barrier 1.5x.75x1.5	25	ea	63.75	$1,594
Jersey Barrier 1.75x.75x1.75	40	ea	74.375	$2,975
Total				$1,226,111

Co-Mingling Pond @ Tails	
allow gallons	1,000,000
Volume CF	133,690
@ 10' Deep=	13,369
use 100x150'	15,000
Excavation	$27,778
Lining (2)	$31,410
Contr Indirect	$29,594
Total	$88,782
Sludge Disposal Facility	
Acres	2.5
Volume CF	2,178,000
@ 20' Deep=	108,900
use 350x350'	122,500
Excavation	$226,852
Lining (2)	$323,960
Contr Indirect	$275,406
Total	$826,218

Labor

Classification	Rate/Hr incl	OT @ 45Hr 5.56%	Total Incl
Common Laborer	$23.07	$24.35	$24.35
Carpenters	$29.85	$31.51	$31.51
Cement Finishers	$25.43	$26.84	$26.84
Electrician		$0.00	$0.00
Equipment Operator Crane or Sh	$28.55	$30.14	$30.14
Equipment Operator Medium Eq	$27.40	$28.92	$28.92
Equipment Operator Light Equip	$22.82	$24.09	$24.09
Equipment Operator Oiler	$22.82	$24.09	$24.09
Equipment Operator Master Mec	$28.55	$30.14	$30.14
Plumbers	$18.74	$19.78	$19.78
Pipefitter	$27.35	$28.87	$28.87
Structural Steel Worker	$30.02	$31.69	$31.69
Truck Driver Light	$20.07	$21.19	$21.19
Truck Driver Heavy	$27.44	$28.96	$28.96
Welder, Structural Steel	$30.02	$31.69	$31.69
Wrecking		$0.00	$0.00

EQUIPPROD

Productivity			Labor	Owne/Oper Cost /EA/Hr	/HR	Total	Gal/Hr
992 Loader							
Rate @ 14 Cy Bucket & .75 Min	1120	CY/Hr					
W/Efficiency @ .83	929.6	CY/Hr					
W/Bucket Capacity @ .90	836.64	CY/Hr					
Truck Haul							
Borrow Placing Spread over 4000 to 14000l No.				Rental/Ea/H	Rental/Hr		
Front End Loader 992	1	ea	$30.14	$231.64	$231.64	$261.78	31.5
Haul Trucks 100 T	4	ea	$115.86	$168.96	$675.85	$791.71	80
Water Truck 10,000 Gallon	1	ea	$28.96	$114.40	$114.40	$143.36	14.75
Dozer D-9	2	ea	$57.84	$132.04	$264.08	$321.93	28
Motor Grader 14	1	ea	$28.92	$60.34	$60.34	$89.26	6.5
Foreman w/Pickup	1	ea	$31.14	$7.53	$7.53	$38.66	2
Dumpman	1	ea	$24.35		$0.00	$24.35	
Total	11		$317.21		$1,353.84	$1,671.06	162.75
Unit per CY	0.01		$0.38		$1.62	$2.00	0.19
Borrow Placing Spread 14000 to 21000lf No.				Rental/Ea/H	Rental/Hr		
Front End Loader 992	1	ea	$30.14	$231.64	$231.64	$261.78	31.5
Haul Trucks 100 T	5	ea	$144.82	$168.96	$844.82	$989.64	100
Water Truck 10,000 Gallon	1	ea	$28.96	$114.40	$114.40	$143.36	14.75
Dozer D-9	2	ea	$57.84	$132.04	$264.08	$321.93	28
Motor Grader 14	1	ea	$28.92	$60.34	$60.34	$89.26	6.5
Foreman w/Pickup	1	ea	$31.14	$7.53	$7.53	$38.66	2
Dumpman	1	ea	$24.35		$0.00	$24.35	
Total	12		$346.18		$1,522.81	$1,868.98	182.75
Unit per CY	0.01		$0.41		$1.82	$2.23	0.22
Scrapers							
Borrow Placing Spread 400 to 1500lf No.				Rental/Ea/H	Rental/Hr		
Scraper Cat 651	5	ea	$144.61	$193.32	$966.60	$1,111.21	93.75
Water Truck 10,000 Gallon	1	ea	$28.96	$114.40	$114.40	$143.36	14.75
Dozer D-9	3	ea	$86.77	$132.04	$396.13	$482.89	42
Motor Grader 14	1	ea	$28.92	$60.34	$60.34	$89.26	6.5
Foreman w/Pickup	1	ea	$31.14	$7.53	$7.53	$38.66	2
Dumpman	1	ea	$24.35		$0.00	$24.35	
Total	12		$344.75		$1,544.99	$1,889.74	159
Unit per CY	0.01		$0.23		$1.01	$1.24	0.10

Borrow Placing Spread 2000 to 4000lf	No.			Rental/Ea/H	Rental/Hr		
Scraper Cat 651	6	ea	$173.53	$193.32	$1,159.92	$1,333.45	112.5
Water Truck 10,000 Gallon	1	ea	$28.96	$114.40	$114.40	$143.36	14.75
Dozer D-9	3	ea	$86.77	$132.04	$396.13	$482.89	42
Motor Grader 14	1	ea	$28.92	$60.34	$60.34	$89.26	6.5
Foreman w/Pickup	1	ea	$31.14	$7.53	$7.53	$38.66	2
Dumpman	1	ea	$24.35		$0.00	$24.35	
Total	13		$373.67		$1,738.31	$2,111.98	177.75
Unit per CY	0.01		$0.24		$1.14	$1.38	0.12
Quarry Rock							
Use Cat 320N Backhoe w/1.25CY Bucket	113	cy/hr					
Rock Excavation							
Drill	1	ea	$30.14	$89.45	$89.45	$119.59	5
Blasting Truck	1	ea	$30.14	$13.28	$13.28	$43.42	2
Driller Helper	1	ea	$24.35			$24.35	
Blaster Helper	1	ea	$24.35			$24.35	
Backhoe 320N	1	ea	$30.14	$52.49	$52.49	$82.62	3.75
Dozer D-8	1	ea	$28.92	$97.04	$97.04	$125.97	8.75
Foreman w/Pickup	1	ea	$31.14	$7.53	$7.53	$38.66	2
Laborers	1	ea	$24.35		$0.00	$24.35	
Drill & Blast Materials	113	cy		$1.80		$0.00	
Total	121		$223.52		$259.80	$483.32	21.5
Unit per CY	1.07		$1.98		$2.30	$4.28	0.19
Haul Quarry Rock							
Haul Trucks 12CY	3	ea	$86.89	$29.23	$87.70	$174.59	15
Water Truck 10,000 Gallon	1	ea	$28.92	$114.40	$114.40	$143.32	14.75
Dozer D-8	1	ea	$28.92	$97.04	$97.04	$125.97	14
Motor Grader 14	1	ea	$28.92	$60.34	$60.34	$89.26	6.5
Compactor 534B	1	ea	$28.92	$43.00	$43.00	$71.93	2
Dumpman	1	ea	$24.35		$0.00	$24.35	
Total	9.07		$228.91		$404.79	$633.70	52.25
Unit per cy	0.08		$2.03		$3.58	$5.61	0.46
Place Quarry Rock							
Foreman	0.5	ea	$14.96	$7.53	$3.76	$18.72	
Dozer D4	1	ea	$28.92	$29.35	$29.35	$58.27	3

EQUIPPROD

Grade Checker	1	ea	$24.35		$0.00	$24.35	
Total	2.58		$70.26		$36.70	$106.96	3
Unit per cy	0.02		$0.62		$0.32	$0.95	0.03
Total Cost for Quarry Rock in Place	1.17		$4.63		$6.21	$10.83	0.68
Seeding @13,000 sf/hr							
Tractor	1	ea	$28.92	$20.90	$20.90	$49.82	3
Seed	1	lot		19.5	$19.50	$19.50	
Total	1.00		$33.55		$46.60	$80.15	3
Unit per sf	0.00		$0.0026	$0.0000	$0.0036	$0.0062	0.00
Mulching @132,500 sf/hr							
Laborer	1	ea	$24.35	$20.90	$20.90	$45.25	
Truck	1	ea	$28.92	$20.90	$20.90	$49.82	3
Power Mulcher	1	ea	$28.92	$20.90	$20.90	$49.82	2
Mulch	1	lot		1262.063	$1,262.06	$1,262.06	
Total	3.00		$82.20		$1,324.76	$1,406.95	5
Unit per sf	0.00		$0.0006	$0.0000	$0.0100	$0.0106	0.00
Spread Fertilizer 800#/Acre, 5 acre/day							
Tractor	1	ea	$28.92	$20.90	$20.90	$49.82	3
Fertilizer	1	lot		46.40625	$46.41	$46.41	
Total/Hr	1.00		$28.92		$67.31	$96.24	3
Unit per sf	0.00		$0.0011	$0.0000	$0.0025	$0.0035	0.00
Total /sf Seed, Mulch & Fertilize	0.00		$0.0043	$0.0000	$0.0161	$0.0203	0.00
Total /acre Seed, Mulch & Fertilize	6.27		$186	$0	$699	$885	36.86

Unit Costs from Granite Construction

STOCKPILE PUSHDOWN (24" MINUS MATERIALS):

1.15

3:1	$/CY	$ 0.40	$ 0.52	$ 0.68	$ 0.71	$ 0.73	$ 0.75	$ 0.83	$ 0.84	$ 0.88
	Distance	211	421	632	842	1,053	1,264	1,474	1,685	1,895
	Equip Spread	D	D	D	S6	S6	S6	S8	S8	S8
Stockpile Height (ft)		100	200	300	400	500	600	700	800	900

STOCKPILE PUSHDOWN (ROM WITH +24" MATERIALS):

3:1	$/CY	$ 0.40	$ 0.52	$ 0.68	$ 0.98	$ 1.00	$ 1.03	$ 1.05	$ 1.08	$ 1.21
	Distance	211	421	632	842	1,053	1,264	1,474	1,685	1,895
	Equip Spread	D	D	D	R4	R4	R4	R4	R4	R5
Stockpile Height (ft)		100	200	300	400	500	600	700	800	900

TAILINGS PUSHDOWN :

7:1	$/CY	$ 0.40	$ 0.76	$ 0.80	$ 0.84	$ 0.86	$ 0.90	$ 1.05	$ 1.20	$ 1.50
	Distance	467	934	1,401	1,868	2,335	2,802	3,269	3,736	4,203
	Equip Spread	D	S6	S8	S8	S8	S8	S10	S10	S12
5:1	$/CY	$ 0.40	$ 0.80	$ 0.80	$ 0.84	$ 0.90	$ 0.98	$ 1.02	$ 1.10	$ 1.28
	Distance	336	672	1,008	1,344	1,680	2,016	2,352	2,688	3,024
	Equip Spread	D	S6	S8	S8	S8	S8	S8	S8	S10
3:1	$/CY	$ 0.40	$ 0.42	$ 0.90	$ 0.94	$ 1.00	$ 1.10	$ 1.15	$ 1.18	$ 1.24
	Distance	211	421	632	842	1,053	1,264	1,474	1,685	1,895
	Equip Spread	D	D	S6	S6	S8	S8	S8	S8	S10
Stockpile Height (ft)		100	200	300	400	500	600	700	800	900

Adapted River Beds	$24.35	lf	
Adapted Vee Ravines			
1 1/2:1	$30.43	lf	
2:1	$26.09	lf	
3:1	$21.74	lf	
4:1	$19.13	lf	
Ground Cover Costs			
Flat 12" Cover	$2,783	acre	1.724757 cy
3:1 Slopes 18" Cover	$3,826	acre	1.581028 cy
4:1 Slopes 18" Cover	$3,652	acre	1.509163 cy
5:1 to 7:1Slopes 18" Cover	$3,478	acre	1.437298 cy
Flat 18" Cover	$3,478	acre	1.437298 cy
3:1 Slopes 24" Cover	$4,522	acre	1.401365 cy
4:1 Slopes 24" Cover	$4,348	acre	1.347467 cy
5:1 to 7:1Slopes 24" Cover	$4,174	acre	1.293568 cy
Flat 24" Cover	$4,174	acre	1.293568 cy
3:1 Slopes 36" Cover	$5,913	acre	1.221703 cy
4:1 Slopes 36" Cover	$5,739	acre	1.185771 cy
5:1 to 7:1Slopes 36" Cover	$5,565	acre	1.149838 cy

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Overtime Factor					1					Code
Working Hours per Month						138.6667				
Construction Equipment Rental Rates										
Blue Book	Rental Monthly	ew Mexico Factor	Rental Monthly W/Factor	Hourly Operating Cost	Rental Monthly	Monthly Operating	Total Monthly Cost	Total Daily Cost	Total Hourly Cost	
Air Compressor 185 CFM	685	0.877	600.745	6.3	600.745	873.6	$1,474	$70.21	$8.78	1Q01
Pavement Breaker 90 Lb	105	0.877	92.085	0.2	92.085	27.73333	$120	$5.71	$0.71	1Q01
Compactor, Ferguson 35A	1530	0.832	1272.96	4.65	1272.96	644.8	$1,918	$91.32	$11.42	4Q00
Compactor, Ferguson 8-12B	2680	0.832	2229.76	7.5	2229.76	1040	$3,270	$155.70	$19.46	4Q00
Vib Plate Compactor 21" Gasoline	275	0.832	228.8	1	228.8	138.6667	$367	$17.50	$2.19	4Q00
Rammer 4-13"	420	0.832	349.44	0.95	349.44	131.7333	$481	$22.91	$2.86	4Q00
Compactor Wacker Manual RS800A	1340	0.832	1114.88	1.8	1114.88	249.6	$1,364	$64.98	$8.12	4Q00
Compactor Vib Cat CB-214C 39.4"	2005	0.832	1668.16	3.9	1668.16	540.8	$2,209	$105.19	$13.15	4Q00
Compactor Vib Cat CB-224C 47.2"	2270	0.832	1888.64	4.15	1888.64	575.4667	$2,464	$117.34	$14.67	4Q00
Compactor Vib Cat CB-534C 67"	6875	0.832	5720	10.85	5720	1504.533	$7,225	$344.03	$43.00	4Q00
Concrete Bucket .5 CY	160	0.84	134.4	0.2	134.4	27.73333	$162	$7.72	$0.97	3Q00
Concrete Bucket 1 CY	195	0.84	163.8	0.2	163.8	27.73333	$192	$9.12	$1.14	3Q00
36" Floor Trowel	190	0.84	159.6	1.25	159.6	173.3333	$333	$15.85	$1.98	3Q00
Concrete Saw Manual Propelled 4" Cut 12" B	180	0.84	151.2	1.25	151.2	173.3333	$325	$15.45	$1.93	3Q00
Concrete Saw Manual Prpelled 6.75" Cut 18"	390	0.84	327.6	2.7	327.6	374.4	$702	$33.43	$4.18	3Q00
Concrete Saw 5.125" Cut 14" Blade 18HP	440	0.84	369.6	3	369.6	416	$786	$37.41	$4.68	3Q00
Concrete Saw 14.75" Cut 36" Blade 65HP	1060	0.84	890.4	9.6	890.4	1331.2	$2,222	$105.79	$13.22	3Q00
Concrete Vibrator Gas 14'	145	0.84	121.8	0.8	121.8	110.9333	$233	$11.08	$1.39	3Q00
Concrete Vibrator Elec 10'	95	0.84	79.8	0.05	79.8	6.933333	$87	$4.13	$0.52	3Q00
Crawler Mtd Rotary Blasthole Drill D-40K	12980	0.85	11033	65.15	11033	9034.133	$20,067	$955.58	$119.45	4Q00
Hydraulic Track Drill AC ROC F7 4 1/2"	11155	0.85	9481.75	40	9481.75	5546.667	$15,028	$715.64	$89.45	4Q00
Grader Cat 12H EROPS	5255	0.822	4319.61	17.2	4319.61	2385.067	$6,705	$319.27	$39.91	3Q00
Grader Cat 14H EROPS	7955	0.822	6539.01	25.95	6539.01	3598.4	$10,137	$482.73	$60.34	3Q00
Grader Cat 140H EROPS	5575	0.822	4582.65	19.25	4582.65	2669.333	$7,252	$345.33	$43.17	3Q00
Cat 933C Crawler Loader 1.3 CY	3620	0.822	2975.64	10.05	2975.64	1393.6	$4,369	$208.06	$26.01	3Q00
Case 1825 Skidsteer Loader 25HP	1410	0.822	1159.02	3.4	1159.02	471.4667	$1,630	$77.64	$9.71	3Q00
Case 1845 Skidsteer Loader 56HP	2095	0.822	1722.09	6.05	1722.09	838.9333	$2,561	$121.95	$15.24	3Q00
Case 580 Super Lseries 2 4x2 Extendable	2660	0.822	2186.52	9.55	2186.52	1324.267	$3,511	$167.18	$20.90	3Q00
Case 580 Super Lseries 2 4x4 Extendable	2845	0.822	2338.59	9.8	2338.59	1358.933	$3,698	$176.07	$22.01	3Q00

Overtime Factor 1 Code
Working Hours per Month 138.6667
Construction Equipment Rental Rates

Blue Book	Rental Monthly	ew Mexico Factor	Rental Monthly W/Factor	Hourly Operating Cost	Rental Monthly	Monthly Operating	Total Monthly Cost	Total Daily Cost	Total Hourly Cost	
Cat 950G Loader 3.5 CY	5240	0.822	4307.28	18.8	4307.28	2606.933	$6,914	$329.25	$41.16	3Q00
Cat 966G Loader 4.75 CY	7000	0.822	5754	25.9	5754	3591.467	$9,345	$445.02	$55.63	3Q00
Cat 992G Loader 15 CY	29655	0.822	24376.41	104.85	24376.41	14539.2	$38,916	$1,853.12	$231.64	3Q00
Cat 611 Scraper 11-15CY	9770	0.822	8030.94	39.4	8030.94	5463.467	$13,494	$642.59	$80.32	3Q00
Cat 621F Scraper 14-20CY	12275	0.822	10090.05	48.35	10090.05	6704.533	$16,795	$799.74	$99.97	3Q00
Cat 631E Scraper 21-31CY	19075	0.822	15679.65	72.35	15679.65	10032.53	$25,712	$1,224.39	$153.05	3Q00
Cat 651E Scraper 32-44CY	24345	0.822	20011.59	89.9	20011.59	12466.13	$32,478	$1,546.56	$193.32	3Q00
Cat 613C Scraper 8.9-11CY	8815	0.822	7245.93	31.35	7245.93	4347.2	$11,593	$552.05	$69.01	3Q00
Cat 615C Scraper 14-17CY	13085	0.822	10755.87	46.2	10755.87	6406.4	$17,162	$817.25	$102.16	3Q00
Cat 623F Scraper 18-23CY	17950	0.822	14754.9	61.35	14754.9	8507.2	$23,262	$1,107.72	$138.46	3Q00
Cat D3C Series III XL	3480	0.822	2860.56	11.55	2860.56	1601.6	$4,462	$212.48	$26.56	3Q00
Cat D4C XL Series III	3865	0.822	3177.03	12.65	3177.03	1754.133	$4,931	$234.82	$29.35	3Q00
Cat D6R DS	7215	0.822	5930.73	22.05	5930.73	3057.6	$8,988	$428.02	$53.50	3Q00
Cat D8R	13145	0.822	10805.19	39.65	10805.19	5498.133	$16,303	$776.35	$97.04	3Q00
Cat D9R DS	17700	0.822	14549.4	55.05	14549.4	7633.6	$22,183	$1,056.33	$132.04	3Q00
Cat D10R	22770	0.822	18716.94	72.15	18716.94	10004.8	$28,722	$1,367.70	$170.96	3Q00
Cat D11R	36560	0.822	30052.32	109.65	30052.32	15204.8	$45,257	$2,155.10	$269.39	3Q00
Cat 311B .75CY	4165	0.843	3511.095	11	3511.095	1525.333	$5,036	$239.83	$29.98	3Q00
Cat 320BN 1.25 CY	7195	0.843	6065.385	19.85	6065.385	2752.533	$8,818	$419.90	$52.49	3Q00
Cat 365BL 3.60 CY	20690	0.843	17441.67	60.3	17441.67	8361.6	$25,803	$1,228.73	$153.59	3Q00
Cat 375L 4.25 CY	24960	0.843	21041.28	72.2	21041.28	10011.73	$31,053	$1,478.71	$184.84	3Q00
Hitachi EX1800-3 12.6CY	50420	0.843	42504.06	105.1	42504.06	14573.87	$57,078	$2,718.00	$339.75	3Q00
Hitachi EX2500 18.1CY	63060	0.843	53159.58	210.95	53159.58	29251.73	$82,411	$3,924.35	$490.54	3Q00
Hitachi EX3500-3 22.2CY	88555	0.843	74651.87	255.95	74651.87	35491.73	$110,144	$5,244.93	$655.62	3Q00
Grove RT58D 20T Hyd Crane 70' Boom	6595	0.854	5632.13	22.2	5632.13	3078.4	$8,711	$414.79	$51.85	4Q00
Grove RT630C 30T Hyd Crane	9270	0.854	7916.58	30.9	7916.58	4284.8	$12,201	$581.02	$72.63	4Q00
Grove RT 760 60T Hyd Crane 110' Boom	13295	0.854	11353.93	47.9	11353.93	6642.133	$17,996	$856.96	$107.12	4Q00
Grove TM9120 120T Hyd Crane	24530	0.854	20948.62	68.15	20948.62	9450.133	$30,399	$1,447.56	$180.94	4Q00
8,000 Lb RT Forklift 12' Lift 2WD	2480	0.854	2117.92	9.7	2117.92	1345.067	$3,463	$164.90	$20.61	4Q00

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Overtime Factor					1					Code
Working Hours per Month						138.6667				
Construction Equipment Rental Rates										
Blue Book	Rental Monthly	ew Mexico Factor	Rental Monthly W/Factor	Hourly Operating Cost	Rental Monthly	Monthly Operating	Total Monthly Cost	Total Daily Cost	Total Hourly Cost	
8,000 Lb RT Forklift Cat TH83	3765	0.854	3215.31	12.45	3215.31	1726.4	$4,942	$235.32	$29.41	4Q00
Pressure Washer 5,000psi 7gpm	1300	0.881	1145.3	3	1145.3	416	$1,561	$74.35	$9.29	1Q01
Welder Diesel 300A	405	0.881	356.805	6.55	356.805	908.2667	$1,265	$60.24	$7.53	1Q01
Welder Diesel 400A	415	0.881	365.615	8.2	365.615	1137.067	$1,503	$71.56	$8.94	1Q01
On Highway Bottom Dump Semi Trailer 22C	1330	0.797	1060.01	4.35	1060.01	603.2	$1,663	$79.20	$9.90	2Q00
on HighWay Rear Dump Semi 21CY	950	0.797	757.15	3.35	757.15	464.5333	$1,222	$58.18	$7.27	2Q00
Off Highway Bottom Dump Trailer 28CY	2350	0.797	1872.95	10.05	1872.95	1393.6	$3,267	$155.55	$19.44	2Q00
Office Trailer 8x20'	150	0.797	119.55	0.5	119.55	69.33333	$189	$8.99	$1.12	2Q00
Office Trailer 8x26'	210	0.797	167.37	0.65	167.37	90.13333	$258	$12.26	$1.53	2Q00
Office Trailer 8x28'	235	0.797	187.295	0.7	187.295	97.06667	$284	$13.54	$1.69	2Q00
Office Trailer 8x32'	250	0.797	199.25	0.7	199.25	97.06667	$296	$14.11	$1.76	2Q00
Office Trailer10x32'	320	0.797	255.04	0.85	255.04	117.8667	$373	$17.76	$2.22	2Q00
Office Trailer 12x56'	585	0.797	466.245	1.35	466.245	187.2	$653	$31.12	$3.89	2Q00
On Highway8-10 CY Rear Dump	2260	0.854	1930.04	16.05	1930.04	2225.6	$4,156	$197.89	$24.74	2Q00
On Highway 10-12 CY Rear Dump	2820	0.854	2408.28	18.05	2408.28	2502.933	$4,911	$233.87	$29.23	2Q00
Cat 769D 31.8MT	10700	0.854	9137.8	37.8	9137.8	5241.6	$14,379	$684.73	$85.59	2Q00
Cat 771D 40MT	11200	0.854	9564.8	38.8	9564.8	5380.267	$14,945	$711.67	$88.96	2Q00
Cat 773D 52.3MT	14085	0.854	12028.59	50.7	12028.59	7030.4	$19,059	$907.57	$113.45	2Q00
Cat 775D 62.6MT	14955	0.854	12771.57	53.9	12771.57	7474.133	$20,246	$964.08	$120.51	2Q00
Cat 777D 90.9MT	21085	0.854	18006.59	74.85	18006.59	10379.2	$28,386	$1,351.70	$168.96	2Q00
On Highway Truck Tractors 50,000lbs	2770	0.854	2365.58	19.2	2365.58	2662.4	$5,028	$239.43	$29.93	2Q00
On Highway Truck Tractors 75,000lbs	3160	0.854	2698.64	23.55	2698.64	3265.6	$5,964	$284.01	$35.50	2Q00
Flatbed Truck 25,000LB GVW	1225	0.854	1046.15	8.55	1046.15	1185.6	$2,232	$106.27	$13.28	2Q00
On Highway 3,500 Gal Water Truck	2470	0.854	2109.38	14.45	2109.38	2003.733	$4,113	$195.86	$24.48	2Q00
Off Highway Water Tanker 10,000 Gal	12405	0.854	10593.87	62.2	10593.87	8625.067	$19,219	$915.19	$114.40	2Q00
Off Highway Water Tanker 14,000 Gal	15195	0.854	12976.53	76.6	12976.53	10621.87	$23,598	$1,123.73	$140.47	2Q00
4x2 1/2 Ton Pickup	500	0.854	427	4.65	427	644.8	$1,072	$51.04	$6.38	2Q00
4x4 3/4T Pickup	685	0.854	584.99	4.9	584.99	679.4667	$1,264	$60.21	$7.53	2Q00
Light Plant 6 Light Diesel 30'	1495	0.854	1276.73	2.3	1276.73	318.9333	$1,596	$75.98	$9.50	1Q01

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Overtime Factor					1					Code
Working Hours per Month						138.6667				
Construction Equipment Rental Rates										
Blue Book	Rental Monthly	ew Mexico Factor	Rental Monthly W/Factor	Hourly Operating Cost	Rental Monthly	Monthly Operating	Total Monthly Cost	Total Daily Cost	Total Hourly Cost	
Flatbed W/10t Nat 456A	3080	0.854	2630.32	11.95	2630.32	1657.067	$4,287	$204.16	$25.52	2Q00

8. Operating and Maintenance Cost Estimates

This section addresses operating and maintenance cost estimates contributing to the determination of the performance bond to be placed with the State of New Mexico.

Operating costs for administration and maintenance of the post closure/closeout facilities and operation of water treatment facilities have been prepared to complement the capital cost estimate of the closure/closeout plan. Operating costs are estimated by either one of two ways: by summation of cost component developed from a labor force schedule and itemized list of consumables and services or, by historical cost from other operations based on cost per unit of production. The operating cost estimate for this closure/closeout plan was prepared by the summation of cost component method estimating procedure (Table 8.1).

a) Water treatment plant operating cost estimates are based on historical information for labor force, consumables (i.e., reagents), and maintenance cost. Adjustments were made to consider current labor, electricity and consumable unit cost that will be experienced at the local area.

b) Maintenance of the general facilities include:
   - Stockpile berm toe control and care-taking
   - Maintenance of stockpile seepage and run-off control berms and ponds
   - Operation and maintenance of stockpile interceptor and/or pump-back systems
   - Tailing pond berm toe control and care-taking
   - Maintenance of tailing pond seepage collection systems
   - Operation and maintenance of tailing pond interceptor and/or pump-back systems
   - Maintenance of controls to assure no outflow of pit water to the aquifer
   - Water management planning and monitoring; i.e., sampling
   - Maintenance of erosion protection
   - Administration and facilities management.

For estimating general facility maintenance costs, a proposed schedule of labor, electrical service demand, office expense, and contract support has been made to support the operating cost estimate.

8.1 Basis of Operating and Maintenance Cost

Costs are presented in year 2001 dollars. Prevailing wages are used.

The estimated operating cost represents variable and semi-variable costs related to level of production or capacity.

Fixed cost items not related to production level such as depreciation, property taxes, and insurance are excluded from the estimate.

8.1.1 Water Treatment Operating and Maintenance Cost (Closure)

8.1.1.1 Labor (Tables 8.2a, b, c and d)

The manning (labor force) requirement for the water treatment facilities has been developed based on experience from similar operations.

The direct unit labor costs (employee salaries) for operating labor have been assigned based on current labor cost experienced at existing facilities for specified job descriptions.

The direct costs (employee salaries) of supervisory labor have been estimated to be 20 percent of total operating labor and or maintenance labor based on typical industry experience.

Mandated and voluntary employee benefits have been estimated to be 30 percent of the direct labor cost based on typical industry experience.

The manning (labor force) schedule has been derived from an operating schedule based on 24-hour per day, 7-day per week operation and based on typical industry experience.

An allowance of 5 percent of base hours worked per year has been included for non-exempt employees overtime based on typical industry experience. Overtime pay has been calculated at 1.5 times the base rate.

8.1.1.2 Electric Power (Table 8.3 and Table 8.6)

The electric power cost has been calculated from the estimated power draw of specified equipment to be operated in the water treatment plant and from the estimated power draw of water handling equipment.

An electric power unit rate of $0.055 per kilowatt-hour has been applied to the calculated power draw to determine electric power cost. The unit rate is based on the expected rate for low power consumers.

8.1.1.3 Water Treatment Reagents (Tables 8.2a, b, c and d)

Lime slurry will be added to water during the water treatment process. The delivered price for lime is estimated to be $60.00

per ton based on average delivered costs for the past 3 years. Long term lime consumption of 8.7 pounds per 1,000 gallons of water treated is based on double the rate of an operation of a similar industrial plant circuit as well as analysis.

Polymer (flocculants) will be added to treated water to enhance the sedimentation rate of precipitants. The delivered price for polymer is estimated to be $2.00 per pound based on published supplier prices. Polymer consumption of .02 pounds per 1,000 gallons of water treated is based on operation of a similar treatment plant circuit.

Acid will be added to treated water to control discharge pH. The delivered price for acid is estimated to be $0.12 per pound based on published supplier prices. Acid consumption of .07 pounds per 1,000 gallons of water treated is based on operation of a similar treatment plant circuit.

8.1.1.4 Maintenance Parts & Supplies (Tables 8.2a, b, c and d)

Plant maintenance cost is allocated at 5 percent of total construction cost based on estimating experience with similar plants. The total maintenance allocation is further apportioned to 50 percent for materials and supplies and 50 percent to maintenance labor based on typical industry experience.

8.1.1.5 Analytical Cost (Tables 8.4a and b)

The cost of analytical services has been estimated based on experience with similar services. Unit rates and costs have been developed to apply to sample quantities.

During initial year, it is estimated that each impacted well and seep location where water is collected for treatment will be sampled and the sample submitted for analysis four times per year (once each quarter).

The water treatment plant will have the capability to perform water analysis as needed for plant control and monitoring. In addition, it is planned that the water treatment plant effluent will be sampled to generate a monthly composite sample. The monthly composite sample will be submitted for outside analysis (twelve composites per year).

8.1.2 General Facilities Maintenance (Closeout)

Some expense will be budgeted each year to maintain access roads, pumping facilities, and general management of the site. Such management is required for 12 years after completion of individual units of construction. General facility management will be performed by a contractor who will provide record keeping, contracting and administration of support services, payroll services, and administrative services for the water treatment and general facility staff. Management costs will peak when the maximum number of construction units fall within the 12 year monitoring frame. Table 8.5 shows peak work force costs.

8.1.2.1 Labor (Table 8.5)

The manning (labor force) requirement for facilities management has been developed based on experience from similar operations.

The direct unit labor costs (employee salaries) for operating labor have been assigned based on current labor cost experienced at existing facilities for specified job descriptions.

Mandated and voluntary employee benefits have been estimated to be 30 percent of the direct labor cost based on typical industry experience.

The manning (labor force) schedule has been derived from a management office operating schedule based on 8-hours per day, 5-days per week and typical industry experience.

Management costs have been proportioned as partial personnel to recognize part-time participation in the administration of the facility by contract personnel.

The estimate includes contractors overhead and profit based on typical industry experience.

8.1.2.2 Contract Maintenance (Table 8.5)

It is expected that local general contractors will supply labor and equipment to provide routine care and maintenance of the stockpiles, access roads, and pumping facilities.

The cost allocation for general contractor's maintenance is based on a crew working 6-weeks per year with mobilization of forces to occur three times per year.

Contractor's maintenance equipment cost is based on the following construction equipment to be mobilized for work at the site: motor grader, D-8 bulldozer, welding truck, excavator, fuel vehicle, two dump trucks, and two light duty vehicles. Equipment charge-out rates are based on "Equipment Watch Blue Book" standard equipment rates.

Contractor's maintenance peak year personnel cost is based on the following personnel to be mobilized for work at the site: foreman (1), mechanic (1), pipefitter/welder (1), electrician (1), equipment operator (2), and laborer (2). Labor rates are based on contractor provided rates for construction labor.

The estimate includes contractors overhead and profit and New Mexico gross receipts tax based on typical industry experience.

8.1.2.3 Electric Power (Table 8.6)

The electric power cost was calculated for the various pump stations.

An electric power unit rate of $0.055 per kilowatt-hour has been applied to the estimated power draw to determine electric power cost.

8.1.2.4 General Office Expense (Table 8.5)

An allowance has been included to cover the expenses for office supplies and services related to the general office. The allocation is based on 50% of the estimated general office personnel budget based on typical industry experience.

8.1.2.5 General Service Expense (Table 8.5)

A cost allowance for outside technical services related to permit compliance, air quality monitoring, water quality monitoring, noise monitoring, etc. has been included at the rate of $12,000 per year.

A cost allowance for outside consultants related to permit compliance, maintenance, surface water and sedimentation

control, growth media management, soils stabilization, etc. has been included at the rate of $10,000 per year.

A cost allowance for light vehicle operation including fuel and maintenance has been included for 30,000 miles per year at 32.5 cents per mile. This results in an allocation of $10,000 per year.

A cost allowance for operating supplies, small tools, consumables, and safety/health/hygiene personal protective equipment has been included at the rate of $200 per year per person scheduled to work at the facility. This results in an allocation of $3,000 per year.

Chino Closure/Closeout Plan

Table 8.1 - Operating Cost
Water Treatment Plant and General Site Maintenance
Annual Cost Summary

Cost Item	Annual Cost			
	Years 0-5	Years 6-10	Years 11-20	Years 21-30
Water Treatment Plant				
Labor	$ 242,600	$ 242,600	$ 242,600	$ 159,500
Reagents	$ 793,400	$ 350,300	$ 128,300	$ 99,300
Maintenance	$ 162,500	$ 162,500	$ 162,500	$ 81,300
Analytical	$ 59,240	$ 38,650	$ 24,030	$ 15,690
Electric Power	$ 421,700	$ 370,535	$ 370,535	$ 293,740
Sub-Total Water Treatment	$ 1,679,440	$ 1,164,585	$ 927,965	$ 649,530
General Site Maintenance (Peak Year Case)				
Labor				$ 505,000
Maintenance				$ 180,200
Electric Power				$ 5,200
Office Expense				$ 101,000
Service Expense				$ 35,000
Sub-Total General Site				$ 826,400

Chino Closure/Closeout Plan

Table 8.2a Operating Cost - Water Treatment

Years 1-5

1000 gpm Capacity with Chemical Treatment

Cost Item	Number of Personnel	Hours per year	Hourly Rate	Hourly Salary Rate	Annual Salary basis			Annual Cost
Water Treatment Plant Labor								
Labor	4	2,080	12.5					$ 104,000
Maintenance Labor	0.5	2,080	18.0					$ 12,000
Operating & Maintenance Supervisor	1	2,205		$ 29.00	$ 60,320			$ 63,900
Overtime								$ 8,700
Mandated and Voluntary Labor Benefits								54,000
Sub-total Water Treatment Plant Labor Cost								$ 242,600

Cost Item	Treatment Flow Rate (gpm)	Consumption Rate		Annual Consumption		Unit Cost		Annual Cost
		Rate	Unit	Rate	Unit	Cost	Unit	
Water Treatment Plant Reagents								
Lime	1,000	48.6	lbs./1,000 gallons	12,800	Ton	$ 60.00	Ton	$ 768,000
Polymer (Flocculant)	1,000	0.02	lbs./1,000 gallons	10,500	lb	$ 2.00	lb	$ 21,000
Acid	1,000	0.07	lbs./1,000 gallons	36,800	lb	$ 0.12	lb	$ 4,400
Sub-total Water Treatment Plant Reagent Cost								$ 793,400

Cost Item	Estimated Construction Cost	Labor Rate	M&S Rate					Annual Cost
Water Treatment Plant Maintenance								
Maintenance	$ 6,500,000	2.5%	2.5%					
Maintenance Material & Supplies								$ 162,500
Maintenance Labor								Included in Labor summary
Sub-total Water Treatment Plant Maintenance Cost								$ 162,500

Cost Item								Annual Cost
Water Treatment Analytical								
Sampling, Sample Analysis, Reporting					Cost Transfered from Table 8.4			$ 59,240
Sub-total Water Treatment Plant Analytical								$ 59,240

Cost Item								Annual Cost
Water Treatment Plant Electric Power								
Electric Power					Cost Transfered from Table 8.3 and 8.6			$ 421,700
Sub-total Water Treatment Plant Electric Power								$ 421,700
Subtotal Annual Water Treatment Plant Operating Cost								**$ 1,679,440**

Chino Closure/Closeout Plan

Table 8.2b Operating Cost - Water Treatment

Years 6-10 — **800 gpm Capacity with Chemical Treatment**

Cost Item	Number of Personnel	Hours per year	Hourly Rate	Hourly Salary Rate	Annual Salary basis			Annual Cost
Water Treatment Plant Labor								
Labor	4	2,080	12.5					$ 104,000
Maintenance Labor	0.5	2,080	18.0					$ 12,000
Operating & Maintenance Supervisor	1	2,205		$ 29.00	$ 60,320			$ 63,900
Overtime								$ 8,700
Mandated and Voluntary Labor Benefits								54,000
Sub-total Water Treatment Plant Labor Cost								$ 242,600

Cost Item	Treatment Flow Rate (gpm)	Consumption Rate		Annual Consumption		Unit Cost		Annual Cost
		Rate	Unit	Rate	Unit	Cost	Unit	
Water Treatment Plant Reagents								
Lime	800	26.0	lbs./1,000 gallons	5,500	Ton	$ 60.00	Ton	$ 330,000
Polymer (Flocculant)	800	0.02	lbs./1,000 gallons	8,400	lb	$ 2.00	lb	$ 16,800
Acid	800	0.07	lbs./1,000 gallons	29,400	lb	$ 0.12	lb	$ 3,500
Sub-total Water Treatment Plant Reagent Cost								$ 350,300

Cost Item	Estimated Construction Cost	Labor Rate	M&S Rate	Annual Cost
Water Treatment Plant Maintenance				
Maintenance	$ 6,500,000	2.5%	2.5%	
Maintenance Material & Supplies				$ 162,500
Maintenance Labor				Included in Labor summary
Sub-total Water Treatment Plant Maintenance Cost				$ 162,500

Cost Item	Annual Cost
Water Treatment Analytical	
Sampling, Sample Analysis, Reporting	*Cost Transfered from Table 8.4* $ 38,650
Sub-total Water Treatment Plant Analytical	$ 38,650

Cost Item	Annual Cost
Water Treatment Plant Electric Power	
Electric Power	Cost Transfered from Table 8.3 and 8.6 $ 370,535
Sub-total Water Treatment Plant Electric Power	$ 370,535

Subtotal Annual Water Treatment Plant Operating Cost **$ 1,164,585**

Chino Closure/Closeout Plan

Table 8.2c Operating Cost - Water Treatment

Years 11-20

800 gpm Capacity with Chemical Treatment

Cost Item	Number of Personnel	Hours per year	Hourly Rate	Hourly Salary Rate	Annual Salary basis			Annual Cost
Water Treatment Plant Labor								
Labor	4	2,080	12.5					$ 104,000
Maintenance Labor	0.5	2,080	18.0					$ 12,000
Operating & Maintenance Supervisor	1	2,205		$ 29.00	$ 60,320			$ 63,900
Overtime								$ 8,700
Mandated and Voluntary Labor Benefits								54,000
Sub-total Water Treatment Plant Labor Cost								$ 242,600

Cost Item	Treatment Flow Rate (gpm)	Consumption Rate		Annual Consumption		Unit Cost		Annual Cost
		Rate	Unit	Rate	Unit	Cost	Unit	
Water Treatment Plant Reagents								
Lime	800	8.7	lbs./1,000 gallons	1,800	Ton	$ 60.00	Ton	$ 108,000
Polymer (Flocculant)	800	0.02	lbs./1,000 gallons	8,400	lb	$ 2.00	lb	$ 16,800
Acid	800	0.07	lbs./1,000 gallons	29,400	lb	$ 0.12	lb	$ 3,500
Sub-total Water Treatment Plant Reagent Cost								$ 128,300

Cost Item	Estimated Construction Cost	Labor Rate	M&S Rate					Annual Cost
Water Treatment Plant Maintenance								
Maintenance	$ 6,500,000	2.5%	2.5%					
Maintenance Material & Supplies								$ 162,500
Maintenance Labor								Included in Labor summary
Sub-total Water Treatment Plant Maintenance Cost								$ 162,500

Cost Item								Annual Cost
Water Treatment Analytical								
Sampling, Sample Analysis, Reporting					Cost Transfered from Table 8.4			$ 24,030
Sub-total Water Treatment Plant Analytical								$ 24,030

Cost Item								Annual Cost
Water Treatment Plant Electric Power								
Electric Power					Cost Transfered from Table 8.3 and 8.6			$ 370,535
Sub-total Water Treatment Plant Electric Power								$ 370,535
Subtotal Annual Water Treatment Plant Operating Cost								**$ 927,965**

Chino Closure/Closeout Plan

Table 8.2d Operating Cost - Water Treatment

Years 21-30 — 600 gpm Capacity with Chemical Treatment

Cost Item	Number of Personnel	Hours per year	Hourly Rate	Hourly Salary Rate	Annual Salary basis			Annual Cost
Water Treatment Plant Labor								
Labor	4	2,080	12.5					$ 104,000
Maintenance Labor	0.5	2,080	18.0					$ 12,000
Operating & Maintenance Supervisor								$ -
Overtime								$ 8,700
Mandated and Voluntary Labor Benefits								34,800
Sub-total Water Treatment Plant Labor Cost								$ 159,500

Cost Item	Treatment Flow Rate (gpm)	Consumption Rate		Annual Consumption		Unit Cost		Annual Cost
		Rate	Unit	Rate	Unit	Cost	Unit	
Water Treatment Plant Reagents								
Lime	600	8.7	lbs./1,000 gallons	1,400	Ton	$ 60.00	Ton	$ 84,000
Polymer (Flocculant)	600	0.02	lbs./1,000 gallons	6,300	lb	$ 2.00	lb	$ 12,600
Acid	600	0.07	lbs./1,000 gallons	22,100	lb	$ 0.12	lb	$ 2,700
Sub-total Water Treatment Plant Reagent Cost								$ 99,300

Cost Item	Estimated Construction Cost	Labor Rate	M&S Rate	Annual Cost
Water Treatment Plant Maintenance				
Maintenance	$ 6,500,000	2.5%	1.3%	
Maintenance Material & Supplies				$ 81,300
Maintenance Labor				Included in Labor summary
Sub-total Water Treatment Plant Maintenance Cost				$ 81,300

Cost Item	Annual Cost
Water Treatment Analytical	
Sampling, Sample Analysis, Reporting — Cost Transfered from Table 8.4	$ 15,690
Sub-total Water Treatment Plant Analytical	$ 15,690

Cost Item	Annual Cost
Water Treatment Plant Electric Power	
Electric Power — Cost Transfered from Table 8.3 and 8.6	$ 293,740
Sub-total Water Treatment Plant Electric Power	$ 293,740
Subtotal Annual Water Treatment Plant Operating Cost	**$ 649,530**

Chino Closure/Closeout Plan

Table 8.3 - Operating Cost - Water Treatment Electric Power

1000 gpm Capacity with Chemical Treatment

Cost Item	Equipment Number	Connected Horsepower	Connected Kilowatt	Full Load Current (%)	Oper Load @ Motor Eff (KW)	Operating Diversity Factor	Operating hrs/yr	Total (kW hr/yr)	Cost Per kW hr	Total Cost Per Year
		2.0								
Influent Pump		60.0	44.7	35%	15.7	0.9500	8,322	130,320		
Influent Pump		60.0	44.7	35%	15.7	0.9500	8,322	130,320		
Rapid Mix Tank No.1 Mixer		2.0	1.5	47%	0.7	0.9500	8,322	5,833		
Rapid Mix Tank No.2 Mixer		2.0	1.5	47%	0.7	0.9500	8,322	5,833		
Densadeg Clarifier No.1 Mixer		5.0	3.7	47%	1.8	0.1250	1,095	1,919		
Densadeg Clarifier No.1 Scraper		1.0	0.7	47%	0.4	0.9500	8,322	2,917		
Densadeg Clarifier No.1 Sludge Recirculation Pump No.1		7.5	5.6	47%	2.6	0.9500	8,322	21,875		
Densadeg Clarifier No.1 Sludge Recirculation Pump No.2		7.5	5.6	47%	2.6	0.9500	8,322	21,875		
Densadeg Clarifier No.1 Sludge Waste Pump No.1		7.5	5.6	47%	2.6	0.7500	6,570	17,270		
Densadeg Clarifier No.1 Sludge Waste Pump No.2		7.5	5.6	47%	2.6	0.0000	0	0		
Densadeg Clarifier No.2 Mixer		7.5	5.6	47%	2.6	0.9500	8,322	21,875		
Densadeg Clarifier No.2 Scraper		1.0	0.7	47%	0.4	0.9500	8,322	2,917		
Densadeg Clarifier No.2 Sludge Recirculation Pump No.1		7.5	5.6	47%	2.6	0.9500	8,322	21,875		
Densadeg Clarifier No.2 Sludge Recirculation Pump No.2		7.5	5.6	47%	2.6	0.0000	0	0		
Densadeg Clarifier No.2 Sludge Waste Pump No.1		7.5	5.6	47%	2.6	0.7500	6,570	17,270		
Densadeg Clarifier No.2 Sludge Waste Pump No.2		7.5	5.6	47%	2.6	0.0000	0	0		
Series Tank Pump No.1		40.0	29.8	47%	14.0	0.9500	8,322	116,667		
Series Tank Pump No.2		40.0	29.8	0%	0.0	0.0000	0	0		
Neutralization Tank Mixer		0.5	0.4	47%	0.2	0.9500	8,322	1,458		
Greenleaf Filter No.1 Blower		10.0	7.5	41%	3.1	0.7500	6,570	20,087		
Greenleaf Filter No.1 Vacuum Pump No.1		1.0	0.7	41%	0.3	0.7500	6,570	2,009		
Greenleaf Filter No.1 Vacuum Pump No.2		1.0	0.7	41%	0.3	0.0000	0	0		
Greenleaf Filter No.2 Blower		10.0	7.5	41%	3.1	0.7500	6,570	20,087		
Greenleaf Filter No.2 Vacuum Pump No.1		1.0	0.7	41%	0.3	0.7500	6,570	2,009		
Greenleaf Filter No.2 Vacuum Pump No.2		1.0	0.7	41%	0.3	0.0000	0	0		
Effluent Pump No.1		25.0	18.6	47%	8.8	0.7500	6,570	57,566		
Effluent Pump No.2		25.0	18.6	47%	8.8	0.7500	6,570	57,566		
Effluent Pump No.3		25.0	18.6	47%	8.8	0.0000	0	0		
Sludge Blending Tank Mixer		7.5	5.6	47%	2.6	0.9500	8,322	21,875		
Sludge Transfer Pump No.1		2.0	1.5	47%	0.7	0.7500	6,570	4,605		
Slidge Transfer Pump No.2		2.0	1.5	47%	0.7	0.0000	0	0		
Lime Silo Bin Bottom Activator		0.8	0.6	47%	0.3	0.7500	6,570	1,727		
Lime Silo Dust Collector		0.1	0.1	41%	0.0	0.0750	657	25		
Lime Screw Feeder No.1		0.3	0.2	41%	0.1	0.7500	6,570	502		
Lime Screw Feeder No.2		0.3	0.2	41%	0.1	0.0000	0	0		
Lime Slaker No.1		0.3	0.2	41%	0.1	0.7500	6,570	502		
Lime Slaker No.2		0.3	0.2	41%	0.1	0.0000	0	0		
Lime Grit Screw No.1		0.1	0.1	41%	0.0	0.7500	6,570	251		
Lime Grit Screw No.2		0.1	0.1	41%	0.0	0.0000	0	0		
Lime Slurry Tank Mixer		0.5	0.4	47%	0.2	0.9500	8,322	1,458		
Lime Slurry Pump No.1		5.0	3.7	47%	1.8	0.9500	8,322	14,583		
Lime Slurry Pump No.2		5.0	3.7	47%	1.8	0.0000	0	0		
Acid Feed Pump No.1		0.3	0.2	47%	0.1	0.9500	8,322	729		
Acid Feed Pump No.2		0.3	0.2	47%	0.1	0.0000	0	0		
Polymer Air Blower No.1		1.0	0.7	41%	0.3	0.9500	8,322	2,544		
Polymer Air Blower No.2		1.0	0.7	41%	0.3	0.0000	0	0		
Polymer Screw Feeder No.1		1.0	0.7	41%	0.3	0.7500	6,570	2,009		
Polymer Screw Feeder No.2		1.0	0.7	41%	0.3	0.0000	0	0		
Polymer Mix Tank No.1 Mixer		1.0	0.7	47%	0.4	0.9500	8,322	2,917		
Polymer Mix Tank No.2 Mixer		1.0	0.7	47%	0.4	0.0000	0	0		
Polymer Transfer Pump No.1		0.8	0.6	47%	0.3	0.7500	6,570	1,727		
Polymer Transfer Pump No.2		0.8	0.6	47%	0.3	0.0000	0	0		
Polymer Feed Pump No.1		1.0	0.7	35%	0.3	0.9500	8,322	2,172		
Polymer Feed Pump No.2		1.0	0.7	35%	0.3	0.9500	8,322	2,172		
Polymer Feed Pump No.3		1.0	0.7	35%	0.3	0.9500	8,322	2,172		
Polymer Feed Pump No.4		1.0	0.7	35%	0.3	0.9500	8,322	2,172		
Polymer Feed Pump No.5		1.0	0.7	47%	0.4	0.0000	0	0		
Service Water Accelerator Mixer		0.3	0.2	47%	0.1	0.9500	8,322	729		
Service Water Sludge Pump No.1		2.0	1.5	47%	0.7	0.9500	8,322	5,833		
Service Water Sludge Pump No.2		2.0	1.5	47%	0.7	0.0000	0	0		
Service Water Clearwell Pump No.1		10.0	7.5	47%	3.5	0.7500	6,570	23,026		
Service Water Clearwell Pump No.2		10.0	7.5	47%	3.5	0.0000	0	0		
Service Air Compressor No.1		15.0	11.2	41%	4.6	0.2500	2,190	10,043		
Service Air Compressor No.2		15.0	11.2	41%	4.6	0.2500	2,190	10,043		
Potable Water Pump No.1		7.5	5.6	47%	2.6	0.7500	6,570	17,270		
Potable Water Pump No.2		7.5	5.6	47%	2.6	0.7500	6,570	17,270		
Potable Water Pump No.3		7.5	5.6	47%	2.6	0.0000	0	0		
Fire Pump		10.0	7.5	47%	3.5	0.0030	26	92		
Sludge Transfer Jet Mix Pump No.1		5.0	3.7	47%	1.8	0.7500	6,570	11,513		
Sludge Transfer Jet Mix Pump No.2		5.0	3.7	47%	1.8	0.0000	0	0		
First Stage Sludge Transfer Pump		10.0	7.5	47%	3.5	0.7500	6,570	23,026		
Second Stage Sludge Transfer Pump		10.0	7.5	47%	3.5	0.7500	6,570	23,026		
Miscellaneous Lighting & Small Power Allowance								17,711		
Sub-Total Annual Electric Power Water Treatment								903,300	$ 0.055	$ 49,700

Table 8.4a - Operating Cost - Sampling, Sample Analysis, Reporting

Uninflated Cash Flow Estimate for Chino - Water Sampling/Analysis/Reporting

Assumptions:

1) Closure Environmental Sampling Begins after facility closure and continues for 30 years
2) Prior to facility closure, sampling is covered under operating expenses
3) After a facility is closed, sampling is quarterly for 5 years, then semi-annual for 10 years, then annual for 15 years
4) Sampler is available on site as treatment plant personnel with part time environmental sampling responsibilities
Therefore, use labor rate similar to water treatment plant laborer

Year	Tailing Locations	Stockpile Locations	Pit Locations	Water Treatment Locations	Total Locations	Quarterly Sampling Cost per year	Semi-annual Sampling Cost per year	Annual Sampling Cost per year	Total Envir Sampling Cost per Year	Monthly Water Treatment Sample Costs	Total Cash Flow
1											
2	11	0	3		14	$19,600			$19,600		$19,600
3	11	0	3		14	$19,600			$19,600		$19,600
4	11	0	3		14	$19,600			$19,600		$19,600
5	11	0	3		14	$19,600			$19,600		$19,600
6	11	0	3		14	$19,600			$19,600		$19,600
7	11	0	3		14	$19,600			$19,600		$19,600
8	11	0	3	0	14	$19,600			$19,600	$ -	$19,600
9	11	29	3	2	43	$40,600	$ 9,660		$50,260	$ 8,980	$59,240
10	11	29	3	2	43	$40,600	$ 9,660		$50,260	$ 8,980	$59,240
11	11	29	3	2	43	$40,600	$ 9,660		$50,260	$ 8,980	$59,240
12	11	29	3	2	43	$40,600	$ 9,660		$50,260	$ 8,980	$59,240
13	11	29	3	2	43	$40,600	$ 9,660		$50,260	$ 8,980	$59,240
14	11	29	3	2	43		$ 29,670		$29,670	$ 8,980	$38,650
15	11	29	3	2	43		$ 29,670		$29,670	$ 8,980	$38,650
16	11	29	3	2	43		$ 29,670		$29,670	$ 8,980	$38,650
17	11	29	3	2	43		$ 29,670		$29,670	$ 8,980	$38,650
18	11	29	3	2	43		$ 29,670		$29,670	$ 8,980	$38,650
19	11	29	3	2	43			$ 15,050	$15,050	$ 8,980	$24,030
20	11	29	3	2	43			$ 15,050	$15,050	$ 8,980	$24,030
21	11	29	3	2	43			$ 15,050	$15,050	$ 8,980	$24,030
22	11	29	3	2	43			$ 15,050	$15,050	$ 8,980	$24,030
23	11	29	3	2	43			$ 15,050	$15,050	$ 8,980	$24,030
24	11	29	3	2	43			$ 15,050	$15,050	$ 8,980	$24,030
25	11	29	3	2	43			$ 15,050	$15,050	$ 8,980	$24,030
26	11	29	3	2	43			$ 15,050	$15,050	$ 8,980	$24,030
27	11	29	3	2	43			$ 15,050	$15,050	$ 8,980	$24,030
28	11	29	3	2	43			$ 15,050	$15,050	$ 8,980	$24,030
29		29	3	2	32			$ 11,200	$11,200	$ 4,490	$15,690
30		29	3	2	32			$ 11,200	$11,200	$ 4,490	$15,690
31		29	3	2	32			$ 11,200	$11,200	$ 4,490	$15,690
32		29	3	2	32			$ 11,200	$11,200	$ 4,490	$15,690
33		29	3	2	32			$ 11,200	$11,200	$ 4,490	$15,690
34		29	3	2	32			$ 11,200	$11,200	$ 4,490	$15,690
35		29	3	2	32			$ 11,200	$11,200	$ 4,490	$15,690
36		29	3	2	32			$ 11,200	$11,200	$ 4,490	$15,690
37		29	3	2	32			$ 11,200	$11,200	$ 4,490	$15,690
38		29	3	2	32			$ 11,200	$11,200	$ 4,490	$15,690
					Totals	**$340,200**	**$196,650**	**$262,500**	**$799,350**	**$224,500**	**$1,023,850**

Chino Closure/Closeout Plan

Table 8.4b - Operating Cost Basis - Sampling, Sample Analysis, Reporting

	Sample Collection						Shipping and Analysis					Reporting					
Sample Basis Type	Samples per Year	Collection Time per sample (hours)	Sampler's Labor Hourly Rate	Sampler's Vehicle Daily Rate	Sampler's Equipment Daily Rate	Sampling Cost	Number of Shipping Coolers per Sample	Shipping Cost per Cooler	Shipping Cost	Analysis Cost per Sample	Analysis and Shipping Cost	Report Work per Sample (Hours)	Report Work Hourly Rate	Review Work per Sample (Hours)	Review Work Hourly Rate	Reporting Cost	Total Sample Cost
Environmental Water Sample																	
Quarterly Sampling	4	2.00	$ 30.00	$ 75.00	$ 75	$ 390	0.25	$ 50	$ 50	$ 184	$ 790	0.667	$ 60	0.167	$ 90	$ 220	$ 1,400
Semi-Annual Sampling	2	2.00	$ 30.00	$ 75.00	$ 75	$ 200	0.25	$ 50	$ 25	$ 184	$ 380	0.667	$ 60	0.167	$ 90	$ 110	$ 690
Annual Sampling	1	2.00	$ 30.00	$ 75.00	$ 75	$ 100	0.25	$ 50	$ 13	$ 184	$ 190	0.667	$ 60	0.167	$ 90	$ 60	$ 350
Water Treatment Plant																	
Treatment Effluent or Commingled Water	12	2.00	$ 30.00	$ 75.00	$ 75	$ 1,170	0.25	$ 50	$ 150	$ 184	$ 2,660	0.667	$ 60	0.167	$ 90	$ 660	$ 4,490

Chino Closure/Closeout Plan

Table 8.5 - Operating Cost - General Site Management

Cost Item	Number of Personnel	Hours per year	Hourly Rate	Hourly Salary Rate	Annual Salary basis	Annual Cost
General Site Office Labor						
Project Manager	1	780		$ 45.00	$ 93,600	$ 35,100
Operations Manager	1	2,080		$ 35.00	$ 72,800	$ 72,800
Project Accountant	1	2,080		$ 25.00	$ 52,000	$ 52,000
Accountant/ Clerical	1	520	$ 15.00			$ 7,800
Clerical	1	2,600	$ 12.00			$ 31,200
Head Office Manager	1	52		$ 60.00	$ 124,800	$ 3,100
Mandated and Voluntary Labor Benefits						$ 80,800
Contract Overhead & Fee						$ 222,200
Sub-total General Site Office Labor Cost						$ 505,000

Cost Item	Number of Units	Hours per year	Hourly Rate	Annual Cost
Contract General Site Maintenance				
Foreman	1	240	$ 35.77	$ 8,600
Mechanic	1	240	$ 32.30	$ 7,800
Pipefitter/Welder	1	240	$ 27.35	$ 6,600
Electrician	1.00	240	$ 30.02	$ 7,200
Equipment Operator	3	720	$ 28.55	$ 20,600
Laborer	2	720	$ 23.07	$ 16,600
Equipment				
Grader "Cat 14H"	1	240	$ 60.34	$ 14,500
Bulldozer "D-8"	1	240	$ 97.04	$ 23,300
Welder	1	240	$ 6.03	$ 1,400
Pickup Truck	2	480	$ 7.53	$ 3,600
Fuel Truck	1	240	$ 24.48	$ 5,900
Backhoe/Loader	1	240	$ 22.01	$ 5,300
Dump Truck "8-10 CY"	2	480	$ 24.74	$ 11,900
Contractor Overhead & Profit Allocation (23%)				$ 30,700
Mobilization and De-Mobilization				$ 6,800
New Mexico Gross Receipts Tax (5.5%)				$ 9,400
Sub-total Contract General Site Maintenance Cost				$ 180,200

Cost Item		Annual Cost
General Site Electric Power		
Electric Power	Cost Transfered from Table 8.5	$ 5,200
Sub-total General Site Electric Power Cost		$ 5,200

Cost Item	Annual Cost
General Site Office Expense	
Office Expense Allocation (50% of personnel expense)	$ 101,000
Sub-total General Site Office Expense	$ 101,000

Cost Item	Annual Cost
General Site Service Expense	
Technical Services (related to permit compliance)	$ 12,000
Consultants (related to permit compliance)	$ 10,000
Light Vehicle Expense	$ 10,000
Operating Supplies ($200 per year per fulltime personnel)	$ 3,000
Sub-total General Site Office Expense	$ 35,000
Subtotal Annual General Site Management Cost	**$ 826,400**

Chino Closure/Closeout Plan

Table 8.6 - Operating Cost - Water Handling and General Site Electric Power

Cost Item	Equipment Number	Connected Horsepower	Connected Kilowatt	Full Load Current (%)	Oper Load @ Motor Eff (KW)	Operating Diversity Factor	Operating hrs/yr	Total (kW hr/yr)	Cost Per kW hr	Total Cost Per Year	Year 1-5 Total Cost Per Year	Year 6-20 Total Cost Per Year	Year21-30 Total Cost Per Year
Interceptor Wells - Tailing & Whitewater													
Pump P101		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Pump P102		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Pump P103		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Pump P104		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Pump P105		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Pump P106		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Pump P107		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Pump P108		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Pump P109		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Pump P110		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Pump P111		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Pump P112		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Pump P113		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Pump P114		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Pump P115		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Pump P116		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Pump P117		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Pump P118		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Pump P119		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Pump P120		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Production Wells - Make-up Water													
Pump P201		100.0	74.6	60%	44.7	0.9500	8,322	372,343	0.06	20,479		16,383	10,239
Pump P202		100.0	74.6	60%	44.7	0.9500	8,322	372,343	0.06	20,479		16,383	10,239
Pump P203		100.0	74.6	60%	44.7	0.9500	8,322	372,343	0.06	20,479		16,383	10,239
Pump P204		100.0	74.6	60%	44.7	0.9500	8,322	372,343	0.06	20,479		16,383	10,239
Pump P205		100.0	74.6	60%	44.7	0.9500	8,322	372,343	0.06	20,479		16,383	10,239
Pump P206		100.0	74.6	60%	44.7	0.9500	8,322	372,343	0.06	20,479		16,383	10,239
Pump P207		100.0	74.6	60%	44.7	0.9500	8,322	372,343	0.06	20,479		16,383	10,239
Pump P208		100.0	74.6	60%	44.7	0.9500	8,322	372,343	0.06	20,479		16,383	10,239
Pump P209		100.0	74.6	60%	44.7	0.9500	8,322	372,343	0.06	20,479		16,383	10,239
Pump P210		100.0	74.6	60%	44.7	0.9500	8,322	372,343	0.06	20,479		16,383	10,239
Water Collection System - Pit In-flow													
Pump 401		200.0	149.1	80%	119.3	0.9500	8,322	992,914	0.06	54,610		54,610	54,610
Pump 402		200.0	149.1	80%	119.3	0.9500	8,322	992,914	0.06	54,610		54,610	54,610
Water Collection System - Run-off Handling													
Pump 501		5.0	3.7	80%	3.0	0.9500	8,322	24,823	0.06	1,365		1,365	1,365
Pump 502		5.0	3.7	80%	3.0	0.9500	8,322	24,823	0.06	1,365		1,365	1,365
Pump 503		5.0	3.7	80%	3.0	0.9500	8,322	24,823	0.06	1,365		1,365	1,365
Pump 504		5.0	3.7	80%	3.0	0.9500	8,322	24,823	0.06	1,365		1,365	1,365
Pump 505		5.0	3.7	80%	3.0	0.9500	8,322	24,823	0.06	1,365		1,365	1,365
Stockpile Drainage													
Pump P601		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Pump P602		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Pump P603		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Pump P604		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Pump P605		7.5	5.6	80%	4.5	0.9500	8,322	37,234	0.06	2,048		1,638	1,024
Sub-Total Annual Water Handling Electric Power								6,764,200	$ 0.055	$ 372,000		$ 320,835	$ 244,040
General Site Power:													
Miscellaneous Lighting & Small Power Allowance		48.5	36.2	60%	21.7	0.5000	4,380	95,045					
Sub-Total Annual General Site Electric Power								95,000	$ 0.055	$ 5,200		$ 5,200	$ 5,200

9. Financial Assurance Calculation

9.1 Project Schedule

9.1.1 Parameters Affecting Schedule

The project as defined, or any project for that matter, cannot be constructed instantaneously. Payments occur as subprojects of construction are completed. Construction would be staggered for the following reasons.

- In the event of Phelps Dodge ceasing as a company (an unlikely event, nonetheless, the purpose of this exercise), numerous candidates would be available to complete processing of ore already mined since mining and placement on rock piles is a considerable cost in the recovery of copper. In other words, copper will be retrievable at a cost much lower than market value through continuation of leaching and the SX/EW plant. Leaching could continue from 8 to 12 years after cessation of mining, depending upon individual stockpile characteristics.

- Due to the large size of the project, even the largest of contractors could not perform this project in, say, a one-year period because of the availability of equipment and other resources.

- Large earthwork moving projects are typically based on expending life-cycles of dozers, scrapers, shovels, and trucks. For example, a project that would utilize half-life cycle costs for shovels and trucks and one and one-half life cycles for dozers and scrapers would be cost exorbitant due to mobilization and maintenance costs. The following schedules are based on full onsite depreciation of mobile equipment.

- The practicality exists of demonstrating that initial recovery methods are appropriate based on testing and observation; e.g., perhaps thinner covers are viable.

- In general, tailing ponds and most process facilities and incidentally disturbed areas would be reclaimed first as they represent a significant disturbance area no longer needed.

- A state mandated 12 year post closeout reclamation monitoring period is required after completion of revegetated tailing ponds and stockpiles and other disturbed areas.

- A state mandated 30 year post closure reclamation water monitoring period is required after completion of revegetated units.

- Interceptor wells must be in place prior to construction of the water treatment plant to facilitate water management.

- Water treatment plant must be in place prior to processing of the stockpiles.

9.1.2 Project Schedule for Proposed Plan

The following construction guidelines are used for the Proposed Plan Schedule:

- Years 0 to 6 – Reclaim of tailing and most process facilities and disturbed areas

- Years 6 to 10 – Reclaim of stockpiles, gradual reduction of flow rate to stockpiles

- Years 7 to 22 – Closeout maintenance

- Year 8 – Completion of water treatment construction, coincides with worst case projection of end of economic viability of processing leachable residues

- Years 9 to 38 – Closure operating and maintenance

A copy of this schedule follows (Schedule 9.1).

9.1.3 Project Schedule for Comparison Case

The following guidelines are used for the Comparison Case Schedule:

- Years 0 to 6 – Reclaim of tailing and most process facilities and disturbed areas

- Years 6 to 12 –Reclaim of stockpiles, gradual reduction of flow rate to stockpiles

- Years 7 to 24 – Closeout maintenance

- Year 9 – Completion of water treatment construction, coincides with worst case projection of end of economic viability of processing leachable residues

- Years 10 to 39 – Closure operating and maintenance

A copy of this schedule follows (Schedule 9.2).

9.2 Cash Flow

Table 9.1 and Table 9.2 show the cash flow analysis for the Proposed Plan and the Comparison Case. Charts 9.1 and 9.2 are the histograms for the raw data.

9.3 Possible Escalated Costs

An escalation rate of 2.55% compounded annually has been used for Tables 9.3 and 9.4. Discount (investment) rates have not yet been resolved.

9.4 Factors Impacting Financial Assurance

M3 has developed costs for capital, closure operating and maintenance, and closeout maintenance. The costs are listed below.

Proposed Plan (0% Escalation):

Water Treatment/Handling Facilities	$12,081,684
Water Treatment Operating & Maintenance	$30,026,455
Closeout Maintenance	$7,437,600
Closeout Capital	$49,367,602
	$98,913,341

Proposed Plan (2.55% Escalation):

Water Treatment/Handling Facilities	$14,043,726
Water Treatment Operating & Maintenance	$50,549,146
Closeout Maintenance	$10,488,282
Closeout Capital	$55,342,312
	$130,423,466

Comparison Case (0% Escalation)

Water Treatment/Handling Facilities	$13,994,412
Water Treatment Operating & Maintenance	$30,026,455
Closeout Maintenance	$9,090,400
Closeout Capital	$198,530,220
	$251,641,487

Comparison Case (2.55% Escalation)

Water Treatment/Handling Facilities	$16,740,255
Water Treatment Operating & Maintenance	$51,838,149
Closeout Maintenance	$13,159,780
Closeout Capital	$236,462,857
	$318,201,041

TABLE 9.1

NEW MEXICO CLOSURE PLAN - CHINO
PROJECT CASH FLOW
PROPOSED PLAN

Sum. of amount	TYPE								
YEAR	dist	maint	pits	res	st piles	tails	wtp	wtpC	Grand Total
y01	$0	$0	$0	$0	$0	$3,997,797	$0	$0	$3,997,797
y02	$0	$0	$0	$634,611	$0	$5,025,537	$0	$0	$5,660,148
y03	$0	$0	$0	$634,611	$0	$5,309,011	$0	$0	$5,943,622
y04	$0	$0	$0	$634,611	$0	$5,024,052	$0	$0	$5,658,663
y05	$302,373	$0	$0	$634,611	$0	$5,287,174	$0	$0	$6,224,158
y06	$1,209,493	$0	$0	$492,165	$43,662	$5,221,900	$0	$0	$6,967,220
y07	$1,209,493	$103,300	$0	$492,165	$3,247,319	$0	$0	$0	$5,052,277
y08	$1,209,493	$206,600	$421,855	$0	$3,059,390	$0	$0	$8,558,911	$13,456,250
y09	$1,209,493	$309,900	$0	$0	$3,665,709	$0	$1,679,440	$0	$6,864,542
y10	$907,120	$413,200	$0	$0	$3,016,730	$0	$1,679,440	$0	$6,016,490
y11	$0	$516,500	$0	$0	$0	$0	$1,679,440	$0	$2,195,940
y12	$0	$619,800	$0	$0	$0	$0	$1,679,440	$0	$2,299,240
y13	$0	$723,100	$0	$0	$0	$0	$1,679,440	$0	$2,402,540
y14	$0	$826,400	$0	$0	$0	$0	$1,164,585	$0	$1,990,985
y15	$0	$826,400	$0	$0	$0	$0	$1,164,585	$0	$1,990,985
y16	$0	$723,100	$0	$0	$0	$0	$1,164,585	$0	$1,887,685
y17	$0	$619,800	$0	$0	$0	$0	$1,164,585	$0	$1,784,385
y18	$0	$516,500	$0	$0	$0	$0	$1,164,585	$0	$1,681,085
y19	$0	$413,200	$0	$0	$0	$0	$927,965	$0	$1,341,165
y20	$0	$309,900	$0	$0	$0	$0	$927,965	$0	$1,237,865
y21	$0	$206,600	$0	$0	$0	$0	$927,965	$0	$1,134,565
y22	$0	$103,300	$0	$0	$0	$0	$927,965	$0	$1,031,265
y23	$0	$0	$0	$0	$0	$0	$927,965	$0	$927,965
y24	$0	$0	$0	$0	$0	$0	$927,965	$0	$927,965
y25	$0	$0	$0	$0	$0	$0	$927,965	$0	$927,965
y26	$0	$0	$0	$0	$0	$0	$927,965	$0	$927,965
y27	$0	$0	$0	$0	$0	$0	$927,965	$0	$927,965
y28	$0	$0	$0	$0	$0	$0	$927,965	$0	$927,965
y29	$0	$0	$0	$0	$0	$0	$649,530	$0	$649,530
y30	$0	$0	$0	$0	$0	$0	$649,530	$0	$649,530
y31	$0	$0	$0	$0	$0	$0	$649,530	$0	$649,530
y32	$0	$0	$0	$0	$0	$0	$649,530	$0	$649,530
y33	$0	$0	$0	$0	$0	$0	$649,530	$0	$649,530
y34	$0	$0	$0	$0	$0	$0	$649,530	$0	$649,530
y35	$0	$0	$0	$0	$0	$0	$649,530	$0	$649,530
y36	$0	$0	$0	$0	$0	$0	$649,530	$0	$649,530
y37	$0	$0	$0	$0	$0	$0	$649,530	$0	$649,530
y38	$0	$0	$0	$0	$0	$0	$649,530	$0	$649,530
y39	$0	$0	$0	$0	$0	$0	$15,690	$0	$15,690
y40	$0	$0	$0	$0	$0	$0	$15,690	$0	$15,690
Grand Total	$6,047,467	$7,437,600	$421,855	$3,522,773	$13,032,810	$29,865,470	$30,026,455	$8,558,911	$98,913,342

Note:

dist= Capital cost for other disturbed areas
maint= Closeout (earthwork) maintenance
pits= Capital cost for closout of open pits
res= Capital cost for reservoirs/dams/impoundments/interceptor wells
st piles= Capital cost for closeout of the stockpiles
tails= Capital cost for the closeout of the tailings ponds
wtp= Operating and Maintenance cost for the water treatment system
wtpC= Capital cost for the water treatment plant
Total capital cost =$6,047,467+$421,855+$3,522,773+$13,032,810+$29,865,470+$8,558,911=$61,449,286
Years 39 & 40 correspond to sampling only

TABLE 9.2

NEW MEXICO CLOSURE PLAN - CHINO
PROJECT CASH FLOW
COMPARISON CASE

Sum of amount	TYPE								
YEAR	dist	maint	pits	res	st piles	tails	wtp	wtpC	Grand Total
y01	0	0	0	0	0	6,891,055	0	0	6,891,055
y02	0	0	0	0	0	7,726,073	0	0	7,726,073
y03	0	0	0	384,571	0	8,076,774	0	0	8,461,346
y04	0	0	0	384,571	0	7,645,044	0	0	8,029,615
y05	859,750	0	0	384,571	0	7,633,647	0	0	8,877,968
y06	1,536,803	0	0	384,571	7,500,159	5,585,595	0	0	15,007,128
y07	1,536,803	103,300	0	1,948,608	26,088,974	0	0	0	29,677,684
y08	1,536,803	206,600	0	1,948,608	23,852,403	0	0	0	27,544,414
y09	1,536,803	309,900	417,559	0	22,814,710	0	0	8,558,911	33,637,883
y10	1,536,803	413,200	0	0	24,441,080	0	1,679,440	0	28,070,523
y11	1,536,803	516,500	0	0	24,769,256	0	1,679,440	0	28,501,999
y12	666,306	619,800	0	0	14,341,017	0	1,679,440	0	17,306,564
y13	0	723,100	0	0	0	0	1,679,440	0	2,402,540
y14	0	826,400	0	0	0	0	1,679,440	0	2,505,840
y15	0	826,400	0	0	0	0	1,164,585	0	1,990,985
y16	0	826,400	0	0	0	0	1,164,585	0	1,990,985
y17	0	826,400	0	0	0	0	1,164,585	0	1,990,985
y18	0	723,100	0	0	0	0	1,164,585	0	1,887,685
y19	0	619,800	0	0	0	0	1,164,585	0	1,784,385
y20	0	516,500	0	0	0	0	927,965	0	1,444,465
y21	0	413,200	0	0	0	0	927,965	0	1,341,165
y22	0	309,900	0	0	0	0	927,965	0	1,237,865
y23	0	206,600	0	0	0	0	927,965	0	1,134,565
y24	0	103,300	0	0	0	0	927,965	0	1,031,265
y25	0	0	0	0	0	0	927,965	0	927,965
y26	0	0	0	0	0	0	927,965	0	927,965
y27	0	0	0	0	0	0	927,965	0	927,965
y28	0	0	0	0	0	0	927,965	0	927,965
y29	0	0	0	0	0	0	927,965	0	927,965
y30	0	0	0	0	0	0	649,530	0	649,530
y31	0	0	0	0	0	0	649,530	0	649,530
y32	0	0	0	0	0	0	649,530	0	649,530
y33	0	0	0	0	0	0	649,530	0	649,530
y34	0	0	0	0	0	0	649,530	0	649,530
y35	0	0	0	0	0	0	649,530	0	649,530
y36	0	0	0	0	0	0	649,530	0	649,530
y37	0	0	0	0	0	0	649,530	0	649,530
y38	0	0	0	0	0	0	649,530	0	649,530
y39	0	0	0	0	0	0	649,530	0	649,530
y40	0	0	0	0	0	0	15,690	0	15,690
y41	0	0	0	0	0	0	15,690	0	15,690
Grand Total	10,746,874	9,090,400	417,559	5,435,501	143,807,599	43,558,188	30,026,455	8,558,911	251,641,487

Note:

dist= Capital cost for other disturbed areas
maint= Closeout (earthwork) maintenance
pits= Capital cost for closout of open pits
res= Capital cost for reservoirs/dams/impoundments/interceptor wells
st piles= Capital cost for closeout of the stockpiles
tails= Capital cost for the closeout of the tailings ponds
wtp= Operating and Maintenance cost for the water treatment system
wtpC= Capital cost for the water treatment plant
Total capital cost =$10,746,874+$417,559+$5,435,501+$143,807,599+$43,558,188+$8,558,911=$212,524,632
Years 40 & 41 correspond to sampling only

TABLE 9.3

NEW MEXICO CLOSURE PLAN - CHINO
PROJECT CASH FLOW
PROPOSED PLAN
ESCALATED @ 2.55%

YEAR	dist	maint	pits	res	st piles	tails	wtp	wtpC	Grand Total
y01	$0	$0	$0	$0	$0	$3,997,797	$0	$0	$3,997,797
y02	$0	$0	$0	$650,794	$0	$5,153,688	$0	$0	$5,804,482
y03	$0	$0	$0	$667,389	$0	$5,583,223	$0	$0	$6,250,611
y04	$0	$0	$0	$684,407	$0	$5,418,276	$0	$0	$6,102,683
y05	$334,415	$0	$0	$701,860	$0	$5,847,446	$0	$0	$6,883,721
y06	$1,371,772	$0	$0	$558,199	$49,520	$5,922,525	$0	$0	$7,902,015
y07	$1,406,752	$120,147	$0	$572,433	$3,776,930	$0	$0	$0	$5,876,262
y08	$1,442,624	$246,422	$503,168	$0	$3,649,089	$0	$0	$10,208,646	$16,049,951
y09	$1,479,411	$379,059	$0	$0	$4,483,769	$0	$2,054,234	$0	$8,396,473
y10	$1,137,852	$518,300	$0	$0	$3,784,055	$0	$2,106,616	$0	$7,546,823
y11	$0	$664,396	$0	$0	$0	$0	$2,160,335	$0	$2,824,731
y12	$0	$817,606	$0	$0	$0	$0	$2,215,424	$0	$3,033,029
y13	$0	$978,197	$0	$0	$0	$0	$2,271,917	$0	$3,250,114
y14	$0	$1,146,447	$0	$0	$0	$0	$1,615,604	$0	$2,762,051
y15	$0	$1,175,681	$0	$0	$0	$0	$1,656,802	$0	$2,832,483
y16	$0	$1,054,954	$0	$0	$0	$0	$1,699,050	$0	$2,754,004
y17	$0	$927,304	$0	$0	$0	$0	$1,742,376	$0	$2,669,680
y18	$0	$792,459	$0	$0	$0	$0	$1,786,806	$0	$2,579,265
y19	$0	$650,133	$0	$0	$0	$0	$1,460,070	$0	$2,110,203
y20	$0	$500,034	$0	$0	$0	$0	$1,497,301	$0	$1,997,335
y21	$0	$341,856	$0	$0	$0	$0	$1,535,483	$0	$1,877,339
y22	$0	$175,287	$0	$0	$0	$0	$1,574,637	$0	$1,749,924
y23	$0	$0	$0	$0	$0	$0	$1,614,791	$0	$1,614,791
y24	$0	$0	$0	$0	$0	$0	$1,655,968	$0	$1,655,968
y25	$0	$0	$0	$0	$0	$0	$1,698,195	$0	$1,698,195
y26	$0	$0	$0	$0	$0	$0	$1,741,499	$0	$1,741,499
y27	$0	$0	$0	$0	$0	$0	$1,785,907	$0	$1,785,907
y28	$0	$0	$0	$0	$0	$0	$1,831,448	$0	$1,831,448
y29	$0	$0	$0	$0	$0	$0	$1,314,613	$0	$1,314,613
y30	$0	$0	$0	$0	$0	$0	$1,348,135	$0	$1,348,135
y31	$0	$0	$0	$0	$0	$0	$1,382,513	$0	$1,382,513
y32	$0	$0	$0	$0	$0	$0	$1,417,767	$0	$1,417,767
y33	$0	$0	$0	$0	$0	$0	$1,453,920	$0	$1,453,920
y34	$0	$0	$0	$0	$0	$0	$1,490,995	$0	$1,490,995
y35	$0	$0	$0	$0	$0	$0	$1,529,015	$0	$1,529,015
y36	$0	$0	$0	$0	$0	$0	$1,568,005	$0	$1,568,005
y37	$0	$0	$0	$0	$0	$0	$1,607,989	$0	$1,607,989
y38	$0	$0	$0	$0	$0	$0	$1,648,993	$0	$1,648,993
y39	$0	$0	$0	$0	$0	$0	$40,849	$0	$40,849
y40	$0	$0	$0	$0	$0	$0	$41,890	$0	$41,890
Grand Total	$7,172,826	$10,488,282	$503,168	$3,835,080	$15,743,364	$31,922,954	$50,549,146	$10,208,646	$130,423,467

Note:

dist= Capital cost for other disturbed areas
maint= Closeout (earthwork) maintenance
pits= Capital cost for closout of open pits
res= Capital cost for reservoirs/dams/impoundments/interceptor wells
st piles= Capital cost for closeout of the stockpiles
tails= Capital cost for the closeout of the tailings ponds
wtp= Operating and Maintenance cost for the water treatment system
wtpC= Capital cost for the water treatment plant
Total capital cost =$6,047,467+$421,855+$3,522,773+$13,032,810+$29,865,470+$10,208,646=$69,386,040
Years 39 & 40 correspond to sampling only

TABLE 9.4

NEW MEXICO CLOSURE PLAN - CHINO
PROJECT CASH FLOW
COMPARISON CASE
ESCALATED @ 2.55%

Sum of amount	TYPE								
YEAR	dist	maint	pits	res	st piles	tails	wtp	wtpC	Grand Total
y01	0	0	0	0	0	6,891,055	0	0	6,891,055
y02	0	0	0	0	0	7,923,088	0	0	7,923,088
y03	0	0	0	404,435	0	8,493,941	0	0	8,898,376
y04	0	0	0	414,748	0	8,244,930	0	0	8,659,678
y05	950,856	0	0	425,324	0	8,442,571	0	0	9,818,751
y06	1,742,997	0	0	436,170	8,506,458	6,335,017	0	0	17,020,641
y07	1,787,443	120,147	0	2,266,409	30,343,871	0	0	0	34,517,871
y08	1,833,023	246,422	0	2,324,203	28,449,969	0	0	0	32,853,617
y09	1,879,765	379,059	510,744	0	27,906,172	0	0	10,468,967	41,144,707
y10	1,927,699	518,300	0	0	30,657,828	0	2,106,616	0	35,210,443
y11	1,976,855	664,396	0	0	31,861,749	0	2,160,335	0	36,663,335
y12	878,954	817,606	0	0	18,917,872	0	2,215,424	0	22,829,855
y13	0	978,197	0	0	0	0	2,271,917	0	3,250,114
y14	0	1,146,447	0	0	0	0	2,329,851	0	3,476,298
y15	0	1,175,681	0	0	0	0	1,656,802	0	2,832,483
y16	0	1,205,661	0	0	0	0	1,699,050	0	2,904,711
y17	0	1,236,406	0	0	0	0	1,742,376	0	2,978,781
y18	0	1,109,442	0	0	0	0	1,786,806	0	2,896,249
y19	0	975,200	0	0	0	0	1,832,370	0	2,807,570
y20	0	833,389	0	0	0	0	1,497,301	0	2,330,691
y21	0	683,713	0	0	0	0	1,535,483	0	2,219,195
y22	0	525,860	0	0	0	0	1,574,637	0	2,100,498
y23	0	359,513	0	0	0	0	1,614,791	0	1,974,304
y24	0	184,340	0	0	0	0	1,655,968	0	1,840,308
y25	0	0	0	0	0	0	1,698,195	0	1,698,195
y26	0	0	0	0	0	0	1,741,499	0	1,741,499
y27	0	0	0	0	0	0	1,785,907	0	1,785,907
y28	0	0	0	0	0	0	1,831,448	0	1,831,448
y29	0	0	0	0	0	0	1,878,150	0	1,878,150
y30	0	0	0	0	0	0	1,348,135	0	1,348,135
y31	0	0	0	0	0	0	1,382,513	0	1,382,513
y32	0	0	0	0	0	0	1,417,767	0	1,417,767
y33	0	0	0	0	0	0	1,453,920	0	1,453,920
y34	0	0	0	0	0	0	1,490,995	0	1,490,995
y35	0	0	0	0	0	0	1,529,015	0	1,529,015
y36	0	0	0	0	0	0	1,568,005	0	1,568,005
y37	0	0	0	0	0	0	1,607,989	0	1,607,989
y38	0	0	0	0	0	0	1,648,993	0	1,648,993
y39	0	0	0	0	0	0	1,691,042	0	1,691,042
y40	0	0	0	0	0	0	41,890	0	41,890
y41	0	0	0	0	0	0	42,959	0	42,959
Grand Total	12,977,592	13,159,780	510,744	6,271,288	176,643,918	46,330,603	51,838,149	10,468,967	318,201,040

Note:

dist= Capital cost for other disturbed areas
maint= Closeout (earthwork) maintenance
pits= Capital cost for closout of open pits
res= Capital cost for reservoirs/dams/impoundments/interceptor wells
st piles= Capital cost for closeout of the stockpiles
tails= Capital cost for the closeout of the tailings ponds
wtp= Operating and Maintenance cost for the water treatment system
wtpC= Capital cost for the water treatment plant
Total capital cost =$10,746,874+$417,559+$5,435,501+$143,807,599+$43,558,188+$10,468,967=$253,203,11
Years 40 & 41 correspond to sampling only

10. JUSTIFICATION FOR WAIVER— OPEN PITS and STOCKPILE OUTSLOPES

The Director may grant a waiver for an open pit that is part of an existing mining operation if the permittee demonstrates that achieving a post-mining land use or self-sustaining ecosystem is technically or economically infeasible or environmentally unsound. For the majority of its mine site, Chino has selected the approved post-mining land use of wildlife habitat.

Under the Mining Act Rules, Section 507.B discusses the process to apply for a waiver:

> 507.B Waiver for Pits and Waste Units
>
> An operator may apply for a waiver for open pits or waste units from the requirement of achieving a post-mining land use or self-sustaining ecosystem. The operator must show that achieving a post-mining land use or self-sustaining ecosystem is not technically or economically feasible or is environmentally unsound. The Director may grant the waiver for an open pit or waste unit if he finds:
>
> 1. measures will be taken to ensure that the open pit or waste unit will meet all applicable federal and state laws, regulations and standards for air, surface water and ground water protection following closure; and
>
> 2. the open pit or waste unit will not pose a current or future hazard to public health or safety.

The Rules also define a self-sustaining ecosystem as follows:

> 107.MM "Self-sustaining ecosystem" means reclaimed land that is self-renewing without augmented seeding, amendments, or other assistance which is capable of supporting communities of living organisms and their environment. A self-sustaining ecosystem includes hydrologic and nutrient cycles functioning at levels of productivity sufficient to support biological diversity.

As interpreted by MMD, to achieve a self-sustaining ecosystem, the permittee must establish a reclaimed surface with soil or other material suitable for establishment of vegetation of appropriate diversity and density that is capable of self-regeneration.

Open Pits

The open pits were constructed by blasting hard rock, excavating the blasted rock with a power shovel, and hauling the broken rock to an appropriate location depending upon its classification as ore, low grade ore, or waste rock. To minimize the amount of non-economic material to be moved, the pit walls are left in the steepest configuration possible consistent with stability and

safety considerations. This configuration minimizes the size of the open pit as well as the amount of material that must be removed and hauled as waste in order to reach the valuable ore. By minimizing, the amount of excavated materials, this method of mining also minimizes the area disturbed for the placement of material stockpiles. Based upon currently identified reserves, the final open pits at Chino would cover an area of approximately 2,000 acres.

The resulting configuration of the open pit leaves a series of steep rock walls with flat benches at intervals of 50 feet. Due to the steepness of the rock walls and the nature of the rock material, substantial modifications would be required in order to reestablish vegetation within a foreseeable time frame.[1] Generally, this would consist of flattening the walls as needed to apply and retain a cover of material suitable to establish vegetation. The walls of the open pit are too steep to retain cover material without flattening. In addition, efforts to reclaim any flat areas within the pit could create significant negative impacts. In the context of the pit area, attempts to revegetate a few small islands or strips (former haul roads) of 7 to 10 acres in size, will not add self sustaining ecosystem benefits to the area. Even if marginally successful in terms of vegetation, these isolated areas would become an attractive nuisance to wildlife.

Run-on from side slopes higher in the pit, related sedimentation, requiring continual maintenance of diversion channels to protect these will provide very limited benefit for the additional costs, and will not be self-sustaining. In addition, blocking access to the pit bottoms with this type of activity will affect water management flexibility as well as potential locations for sludge management.

Reclamation of the open pit portion of large open pit mining operations is contrary to current industry standards and practices, and is generally considered impractical; further, conditional exemptions for the revegetation of open pits and rock faces are included in several state mine reclamation laws (e.g., Arizona, Idaho, Montana, and Nevada).[2] The conditions for exclusion of the revegetation requirement involve economic considerations, geologic stability, and topographic constraints. Federal mine reclamation laws (administered by the United States Bureau of Land Management) also allow some or all portions of open pits to remain unreclaimed. Thus, the request for an open pit waiver at Chino is consistent with the regulatory requirements in other states, and with the federal level for large open pit mining operations.

Technical and Economic Justifications

One means of creating flatter slopes in the open pit would be to excavate additional material around the outside of the pit to reduce the pit walls so that cover material could be maintained on covered surfaces. This method would require the blasting, excavation and removal of tremendous volumes of additional material. Because the open pit is ringed by stockpiles of material removed from the pit, this method also would require relocation of the existing stockpiles. The result would be a much larger open pit and a huge volume of material, including both the material removed to reduce the pit slopes and the removed stockpiles, that would have

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[1] Even steep rock walls may establish vegetation by natural succession over a period of many decades or possible centuries.

[2] *Hard Rock Mining, State Approaches to Environmental Protection*, Environmental Law Institute, Washington, D. C.

to be placed somewhere else. Using this method and assuming a final slope of 3:1, the anticipated acreage of the open pit area would increase from about 2,000 acres to 5,500 acres. Approximately 3 billion cubic yards of material would have to be excavated to reduce the slopes of the pit walls. Consequently, this method is not economically feasible due to the overall cost and the small benefit achieved by providing approximately 2,000 acres of reclaimed wildlife habitat in comparison with the estimated incremental cost of $4 billion. This method also is economically infeasible because it would eliminate Chino's ability to utilize portions of the open pits for mining or potential future leaching operations, requiring that these operations be conducted elsewhere and resulting in additional disturbances. This approach also is infeasible because it would require expansion of the mine outside the approved permit area, requiring Chino to acquire and permit additional lands, both private and federally-owned. Also, this approach is environmentally unsound because the reclamation of the existing disturbance of the open pit would result in the disturbance of an even greater area which itself would have to be reclaimed. The additional disturbance of otherwise undisturbed land is not justified to reclaim 2,000 acres for wildlife habitat.

The second conceivable means of creating flatter slopes in the area of the open pit to allow for reclamation to achieve a self-sustaining ecosystem is to backfill the pit. Complete pit back filling would require moving a total of 1.2 billion cubic yards of material back into the pit at an estimated cost of $2.4 billion. Consequently, this method also is not economically feasible due to the overall cost and the small benefit achieved by providing approximately 2,000 acres of reclaimed wildlife habitat in comparison with the estimated incremental cost of $2.4 billion. Complete back filling of the pit may also adversely affect ground and surface water quality.

Partial back filling of the open pit to utilize these areas as leaching operations may be feasible. Chino currently utilizes a portion of the northern area of the open pit for a leaching operation and has proposed to expand this operation. This method of partial back filling is practicable due to the economic recovery of copper from the leaching operations.

Safety and Environmental Measures

Human Health and Safety

To address human health and safety concerns with regard to the open pit, Chino will take measures to limit future access to the pit to authorized personnel only. Warning signs will be posted, as necessary, around the perimeters of these facilities. A berm will be placed around the perimeter of all pits with razor wire topped chain link fencing. Access will be controlled by maintaining existing or replace perimeter fencing, and security guards will also be used to prevent trespassing.

Environmental Standards

If the waiver is granted, environmental standards would be met using the methods outlined in Chino's Proposed Plan. Storm water run-on will be controlled with berms and sedimentation structures around the circumference of the pit area. Chino will continue to operate and maintain systems to collect and treat water that does not meet standards. As mentioned in section 5.3 of

this closure/closeout plan, Chino is proposing lime precipitation water treatment for the northern mine area impacted water.

Air quality standards are currently being met at the Chino mine. Mining operations result in particulate emissions from haul road traffic, blasting, loading and unloading, and wind. Once operations cease, the only source of particulates will be wind-blown emissions from the uncovered portions of the stockpiles and tailing dams, as well as fugitive dust resulting from reclamation operations. Stockpile surfaces generally do not generate significant dust because of the high rock content. Since no activities within the pits are expected after mining ceases, all air standards within the pits will be met.

Stockpile Outslopes

At Chino, the Open Pit and Stockpile Units currently include leach and waste stockpiles. Many stockpile outslopes at Chino were constructed of waste rock rather than leach ore (even on leach stockpiles) because the outslopes are not accessible for leaching. Furthermore, after the cessation of mining and post-mining leaching operations, all leach stockpiles will become waste stockpiles. The proposed plan does not push down the outer slopes (outslopes) of these stockpiles, but covers and seeds the top surfaces. There will be 1,028 acres of stockpile top surfaces reclaimed to SSE. Stockpile outslope areas will encompass 1,279 acres.

Chino has evaluated the feasibility of reclaiming stockpile outslopes to achieve a wildlife PMLU by comparing the cost of the Proposed Plan for each unit compared with the cost of the Comparison Case for each unit. Chino is proposing a waiver for those stockpiles where the costs under the Comparison Case are unduly high compared to the acreage reclaimed and the benefits of reclamation to achieve a wildlife PMLU. The following table summarizes facility stockpile wavier request status, reclaimed SSE acres, costs, and cost per acre for the Proposed Plan and the Comparison Case:

	Waiver Requested Yes/No	Proposed Plan reclaimed SSE acres	Proposed Plan facility cost dollars	Proposed Plan cost/acre dollars	Comparison Case reclaimed SSE acres	Comparison Case facility cost dollars	Comparison Case cost/acre dollars
West Stockpile	Yes	531	2,183,114	4,111	621	31,250,661	49,526
South Stockpile	Yes	635	2,576,436	4,057	648	46,769,418	72,175
Upper South Stockpile (Borrow)	No	152	92,072	606	152	227,586	1,497
East Pit Access	No	45	91,127	2,025	45	755,050	16,779
Northeast Stockpile	Yes	77	307,568	3,994	111	4,435,331	39,958
Northwest Stockpile	No	20	101,362	5,068	20	114,268	5,713
North Lampbright Stockpile	Yes	172	2,771,802	16,115	239	5,934,309	24,830
Main Lampbright Stockpile	Yes	352	421,855	7,945	452	26,626,058	58,907
South Lampbright Stockpile	Yes	202	1,541,479	7,631	219	21,546,109	98,384
Southwest Lampbright Stockpile	Yes	99	472,218	4,770	112	5,733,759	51,194
North Stockpile	Yes	20	83,005	4,150	27	348,026	12,890
Groundhog No. 5 Stockpile	No	2	15,951	7,976	2	67,023	33,512
Total		2,307	$10,657,989	$4,620	2648	$143,807,598	$54,308

The costs just for flattening and reclaiming the stockpile outslopes to for establishing a SSE is over $143 million. In addition, other significant costs associated with the comparison case would include the following:

- Relocating State Highway 356 will cost approximately $2 million.

- Hanover Creek will have to be relocated. This will require a reservoir to store and release Hanover Creek water through multiple buried pipelines in the original drainage prior to pushdown. This could eliminate Vanadium or will require extensive excavation through the hillside to the west. Purchases of private land, federal permitting will be required. The estimated cost for damming Hanover Creek, for a reservoir and building pipelines that would discharge water to a point south of the West Stockpile push-down area is estimated below:

    - Dam = $10MM
    - Pipelines = $5MM
    - Permitting = $1MM

- Southwestern Railway's railroad right-of-way will have to be relocated with an acceptable slope grade at a cost of approximately $2 million.

- There will be several costs related to replacing toe controls and associated systems that protect surface and ground water quality.

- The approximate cost for reestablishing surface collection systems along the West side of the West Stockpile would be approximately $5,000,000. This includes the reestablishment of Dams 10, 11, 12, 13, 14, 14-1, and 14-2.

- The approximate cost for reestablishing surface collection systems along the west side of the South Stockpile would be approximately $3,000,000. This includes the reestablishment of dams and conveyance structures.

- The approximate cost for reestablishing surface collection systems along the east side of the Lampbright Stockpile would be approximately $1,000,000. This includes the reestablishment of East Lampbright Sump.

- The approximate cost for reestablishing surface collection systems along the south side of the Lampbright Stockpile would be approximately $2,000,000. This includes the reestablishment of Dam 8.

- Mine area re-establishment of subsurface seepage collection systems:

    - The approximate cost for abandoning and reestablishing subsurface seepage collection systems along the west side of the West Stockpile (interceptor wells) would be approximately $1,000,000.

- Abandoning and reestablishing monitoring wells around all the stockpiles would cost approximately $10,000 – $50,000 per well depending on depth and geology. There are approximately 52 monitoring wells around the periphery of the stockpiles.

- Relocation of Hanover Water Association's pipeline would cost approximately $100,000.

Safety and Environmental Measures

Human Health and Safety

To address human health and safety concerns with regard to the stockpile outslopes, Chino will take measures to limit future access to these areas to authorized personnel only. Warning signs will be posted, as necessary, around the perimeters of these facilities. Access will be controlled by maintaining existing or replace perimeter fencing, and security guards will also be used to prevent trespassing.

Environmental Standards

If the waiver is granted, environmental standards would be met using the methods outlined in Chino's Proposed Plan. Runon from stormwater will be controlled with berms to prevent water from the tops of the stockpiles from running down the slopes and sedimentation and runoff containment structures around the bases of the stockpiles. The top surfaces of the stockpiles will be covered and revegetated to reduce seepage and surface water impacts. Chino will continue to operate and maintain systems to collect and treat water that does not meet standards. As mentioned elsewhere in section 5.3 of this closure/closeout plan, Chino is proposing lime precipitation water treatment for the northern mine area impacted water.

Air quality standards are currently being met at the Chino Mine. Mining operations result in particulate emissions from haul road traffic, blasting, loading and unloading, and wind. Once operations cease, the only source of particulates will be wind-blown emissions from the uncovered portions of the stockpiles and tailing dams, as well as fugitive dust resulting from reclamation operations. Since no activities within the pits are expected after mining ceases, all air standards within the pits will be met.

Summary

Chino is requesting a waiver from establishing a SSE for only portions of the Santa Rita Open Pit, and Stockpiles of the Chino Mine NMMA Permit No. GR009RE. The majority of the land areas within the permit area will be reclaimed. The outslopes portion of the stockpiles for the which the waiver would apply account for approximately 1,280 acres of the approximately 2,310 total acres covered by the stockpiles. For the area occupied by the open pit approximately 1,890 acres will not be reclaimed to a SSE. The areas that have not been proposed for reclamation are the pit walls and the side slopes of the stockpiles. All tailing pond areas, borrow areas and demolished building areas will be reclaimed. Overall, only about 3,170 acres out of the approximately 10,250 total disturbed acres occupied by the Chino Mine permit area will not be reclaimed. This is only 30 percent of the total disturbance within the permit area.

Pushing down the stockpile outslopes to flatten them will disturb approximately 350 additional acres that are currently not impacted. Back filling the pits will prevent installation of systems needed to maintain required water levels to prevent flow into the regional ground water aquifers. It will also severely limit the ability to pump the pit water to a treatment facility. Laying back the pit walls will dramatically increase the amount of impacted stormwater runoff that will enter the pits. All of these alternatives are environmentally unsound.

The cost for back filling the open pit alone is approximately $2.4 billion. Bonding for these activities would place the mine at a competitive disadvantage with other copper mines in this country and in the world. The inclusion of these activities for closure/closeout is economically unfeasible.

11. End of Mine Life and Anticipated Schedule for Closure/Closeout

This section outlines the currently anticipated schedule for implementation of the activities described in this plan along with a generalized description of reclamation activities associated with unconstructed facilities categorized as existing in permit GR009RE. General reclamation parameters are provided for facilities approved as existing units in the aforementioned permit that will be constructed at a future date (after 2006). The purpose of this information is to fulfill the regulatory requirement that the closeout plan describe how the permit area will be reclaimed to meet the requirements of the New Mexico Mining Act. Detailed reclamation plans for these facilities will be developed in coordinating with the appropriate regulatory entities and will be in place prior to any associated disturbances.

In 1995, Chino provided to the MMD a detailed description of existing mine units, both previously constructed as well as unconstructed. In early 2001, Chino submitted a permit modification request to remove some of these unconstructed facilities. It is anticipated that this modification will be approved in June 2001. However, the following unconstructed facilities remain integral to Chino's future operational and remain as approved existing units within the permit boundary:

- Tailing Pond 8A (TP8A)
- Tailing Pond 8B (TP8B)
- North Stockpile Extension

11.1 Tailing Pond 8A

Description:

- Volume = unknown
- Footprint Area = 1243 acres
- Slope = 3:1 to 6:1 (H:V)
- Location: T19S, R12W, Sections 27, 28, 29, 32, 33 and 34; T20S, R12W, Sections 3 and 4

The closeout plan for TP8A is similar to Chino's proposed closeout plan for the Tailing Pond 7. The primary closeout design features of TP8A are:

- PMLU – The proposed PMLU for TP8A is wildlife.

- Cover design - The top surface will be covered with 18 inches of suitable cover material and revegetated with the same seed mix described in Section 4. The tailing pond outslopes will be covered with 24 inches of suitable cover material and revegetated with the same seed mix described in Section 4.

- Post closure/closeout surface water management – The top surface of this tailing pond will be graded to accommodate the removal of storm water. This will include construction of a spillway on the tailing pond outslope that has a similar conceptual design as for Tailing Pond 7 as described in the *Chino Tailing Pond Surface Water Study* (GAI, 2000). The tailing pond outslopes will be smoothed as needed to receive the cover material. Drainage and erosion control for tailing ponds will be achieved by providing berms, stormwater conveyance mechanisms (i.e., sheet drainage and/or directed flow in rock lined ditches and ravines), stable slope configurations, revegetation, and where appropriate, slope cover armoring.

- Monitoring – Monitoring of ground water and surface water will be conducted in a similar manner to Tailing Pond 7.

11.2 Tailing Pond 8B

Description:

- Volume = unknown
- Footprint Area = 1670 acres
- Slope = 3:1 to 6:1 (H:V)
- Location: T19S, R12W, Sections 4, 5, 8, 9, 10, 15, 16, 21, 22 and 27

The closeout plan for TP8B is similar to Chino's proposed closeout plan for the Tailing Pond 7. The primary closeout design features of TP8B are:

- PMLU – The proposed PMLU for TP8B is wildlife.

- Cover design - The top surface will be covered with 18 inches of suitable cover material and revegetated with the same seed mix described in Section 4. The tailing pond outslopes will be covered with 24 inches of suitable cover material and revegetated with the same seed mix described in Section 4.

- Post closure/closeout surface water management – The top surface of this tailing pond will be graded to accommodate the removal of storm water. This will include construction of a spillway on the tailing pond outslope that has a similar conceptual design as for Tailing Pond 7 as described in the *Chino Tailing Pond Surface Water Study* (GAI, 2000). The tailing pond outslopes will be smoothed as needed to receive the cover material. Drainage and erosion control for tailing ponds will be achieved by providing berms, stormwater conveyance mechanisms (i.e., sheet drainage and/or directed flow in rock lined ditches and ravines), stable slope configurations, revegetation, and where appropriate, slope cover armoring.

- Monitoring – Monitoring of ground water and surface water will be conducted in a similar manner to Tailing Pond 7.

11.3 North Stockpile Extension

- Volume = 168 million tons
- Footprint Area = 335 acres
- Slope = angle of repose (generally ≈ 1.5:1)
- Location: T17S, R12W, Sections 22, 23, 26 and 27

- PMLU – The proposed PMLU for the top surface of the North Leach Stockpile Extension is wildlife habitat. For the outslopes, a waiver from the requirement to establish a PMLU will be sought.

- Cover design - The top surface will be covered with 24 inches of suitable cover material and revegetated with the same seed mix described in Section 4.

- Post closure/closeout surface water management – The top surface of this stockpile will be graded to accommodate the removal of storm water.

- Monitoring – Monitoring of ground water and surface water will be conducted in a similar manner to other rock stockpiles.

11.4 Schedules for Closure/Closeout Activities

This schedule was developed to fulfill the requirements of Section 69-36-11 of the NMMA and Subpart 506.B.1 of the NMMA Rules. The schedule provides an approximate starting date and duration for completion of reclamation activities associated with each of the major facility groups. Chino Mines Company provides this schedule based on current knowledge of ore reserves and market conditions, and as a result the schedule may change to reflect future changes in market conditions.

The start, duration, and exact order of closure/closeout activities are difficult to predict at this time. Open pit mining at Chino is anticipated to continue for approximately 20 years based on known reserves and current mine plans. In addition, leaching and subsequent recovery of metals will continue for several years after open pit mining ceases. Periodic updates and/or modifications to the exact schedule for closing each facility will not be known until final design. More detailed schedules for reclamation of particular facilities will be provided to the MMD and NMED at a time closer to their closeout.

Therefore, the schedule in Table 11-1 is presented in terms of years starting in approximately 2010, when it is anticipated that definitive results of the reclamation demonstration test areas will be available to finalize reclamation designs for the tailing ponds and stockpiles. Once mining ceases, the waste stockpiles reclamation will be initiated. Following the cessation of active leaching operations and post-mining metal recovery, reclamation can proceed on leach stockpiles and processing facilities, where applicable. The duration of closure/closeout activities is currently expected to span a period of approximately 30 to 40 years. Some of the work may be

conducted concurrently with regular mining operations, and significant amount of reclamation activities will be conducted within 10 years after the cessation of active leaching and metal recovery operations.

The tailing ponds are currently anticipated to be the first facilities to be closed since a significant portion is current inactive. The ability to economically recover copper from tailing may be developed before closure. If so, the tailing reclamation schedule would be adjusted accordingly. As shown in the schedule, large-scale reclamation activities would probably not begin until 2010.

Table 11-1. Approximate Schedule for Closure/Closeout Activities

Major Facilities	Anticipated Start Date [a]	Anticipated Duration [years]
Tailing ponds		
Older tailing ponds; (Ponds 1, 2, B, C, 4, 6E, 6W and Lake One)	2010	2-5
Pond 7:	2017	2-5
Pond 8A:	2021	2-5
Pond 8B:	2021	2-5
Stockpiles (Waste Units)		
Non-leach	2022	3-5
Leach	2032	3-7
Borrow material areas	2039	1-3
Open Pit	2022	1-5
Disturbed areas		
South area	2013	10-20
North area	2022	10-20
Reservoirs	2035	1-3

[a] Anticipated start of final reclamation

Note: Approximately 1 to 2 years prior to reclamation of a particular facility, a detailed schedule for reclamation of that facility will be provided to MMD and NMED.

The rationale for the sequence of closing the other facilities is based on the expected sequence of events once mining and recovery of metals ceases and is listed below:

- Non-leach stockpiles (excluding those designated as borrow material) will likely be closed shortly after open pit mining activities cease.

- Because leaching and SX/EW recovery of metals will continue after open pit mining activities cease, leach stockpiles will not be closed until several years after the non-leach and open pit activities have been conducted.

- Those impoundments that do not have a post-closure use will be reclaimed next.

- Borrow areas will be reclaimed last so that they remain available for reclamation material, and in some cases they may function as sediment catch basins while vegetation is becoming established on closed facilities.

The schedule presented in Table 11-1 is Chino's currently anticipated schedule for reclamation assuming Chino will manage the reclamation work. This schedule is based on several factors including ore reserves, market conditions and surface disturbances expected to occur as mining progresses. The projected surface disturbance and mining facilities associated with the mining process are subject to change through time as mine plans are adjusted to reflect changing market conditions.